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DOD Architecture Framework (DoDAF) Relevance to JITC Testing

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JT4A
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DoDAF's Role in JITC Testing

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- What is going on with DoDAF?
  - DoDAF Evolution
  - A look at DoDAF 2.0

- What Architecture Viewpoints do JITC Testers need to be aware of?
  - All Viewpoints (AV-1 and AV-2)
  - Operational Viewpoints (OV-1, OV-2, OV-3, OV-4, OV-5, and OV-6C
  - System Viewpoints (SV-1, SV-2, SV-4, SV-5, and SV-6)
  - Data and Information Viewpoints (DIV-2 and DIV-3)
  - Standard Viewpoints (StdV-1 and StdV-2)
  - Service Viewpoints (SvcV-1, SvcV-2, SvcV-4, SvcV-5, and SvcV-6)

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The Importance of DoDAF Evolution

- As our Department policies and decision processes evolve, so must the DoDAF

- DoDAF v1.5 represented an important step toward addressing the requirements of the Net-Centric Environment in architectures

- DoDAF v2.0 must address evolving information requirements

of the Department using both top-down and bottom-up approaches

  - Information Sharing
  - Support for the Net-Centric Data and Services Strategies of the Department
  - Portfolio Management

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Net-Centric Concepts were addressed in DoDAF 1.5

The following Net-Centric Concepts were presented and discussed in DoDAF 1.5

1. **Populate the Net-Centric Environment (NCE)**
2. **Utilize the NCE**
3. **Support the Unanticipated user**
4. **Leverage Communities of Interest (COIs) to promote Jointness**
5. **Support Shared Infrastructure**

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Key Policies Requiring DoDAF

DoD

- DoDI 4630.8, 30 June 2004, "Procedures for Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)“

Joint Staff

- CJCSI 3170.01G, 1 MARCH 2009, “JOINT CAPABILITIES INTEGRATION AND DEVELOPMENT SYSTEM”

- Manual for CJCSI 3170.01G, APRIL 2009, “OPERATION OF THE JOINT CAPABILITIES INTEGRATION AND DEVELOPMENT SYSTEM”

- CJCSI 6212.01E, 15 December 2008, “INTEROPERABILITY AND SUPPORTABILITY OF INFORMATION TECHNOLOGY AND NATIONAL SECURITY SYSTEMS”

Direct support for the Warfighter

Moving From DoDAF 1.5 to DoDAF 2.0

Promulgation Memo

- Version 2.0 is the prescribed framework for all Department architectures and represents a substantial shift in approach
  - Don’t redo current architecture
- Architectures shall comply with Version 2.0 in their next major release
  - Update only in the next release
  - Does not prevent early adoption of DoDAF V2.0

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DoDAF V2.0
What are we delivering?

Volume 1 – Manager's Guide

Guidance for Development, Use, and Management of Architectures

Volume 2 – Architect's Guide

Describes construction of Architectures, the DODAF Meta-model, Data Exchange Requirements, and Development of the Architectural Models in technical detail

Volume 3 – Developer's Guide

Introduces the DoDAF Meta-Model Physical Exchange Specification

DoDAF Journal (https://www.us.army.mil/suite/page/454707)

On-line interface providing examples, description of best practices, lessons learned, and reference documents supplementing the information in the three volumes

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DoDAF Evolution To Support "Fit For Purpose" Architecture

- Is an architectural view that is appropriately focused on supporting the stated goals and objectives.
- Is meaningful and useful in the decision-making process.
- Encourages the architect to focus on collecting data and creating views that are customized to the decision-maker's value chain.
- Architectural data and views are aligned to the information consumer's needs.

DoDAF V2.0 Focus

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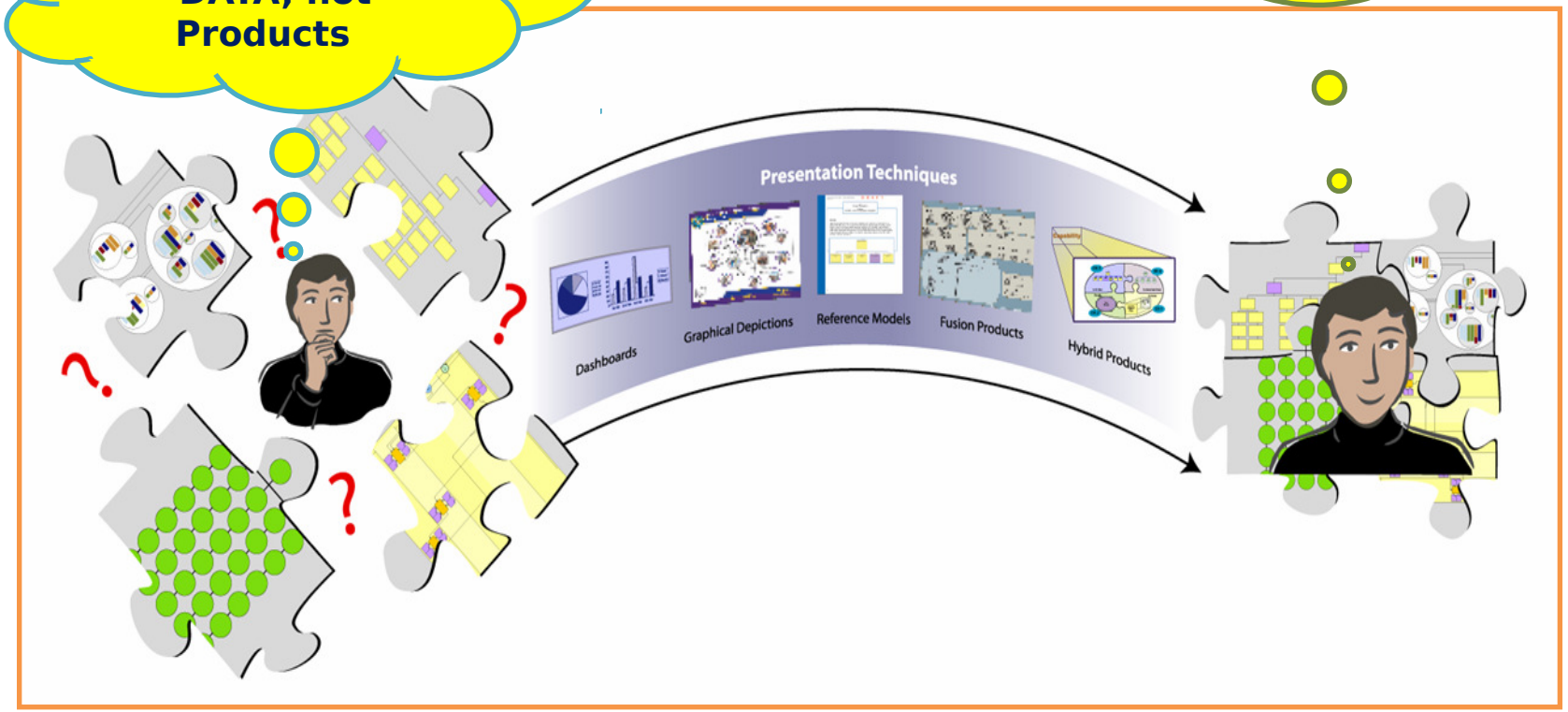
Focus: architecture DATA, not Products

Results: Better ANALYSIS and Decisions.



DoDAF V2.0 provides an overarching set of architecture concepts, guidance, best practices, and methods to enable and facilitate architecture development.

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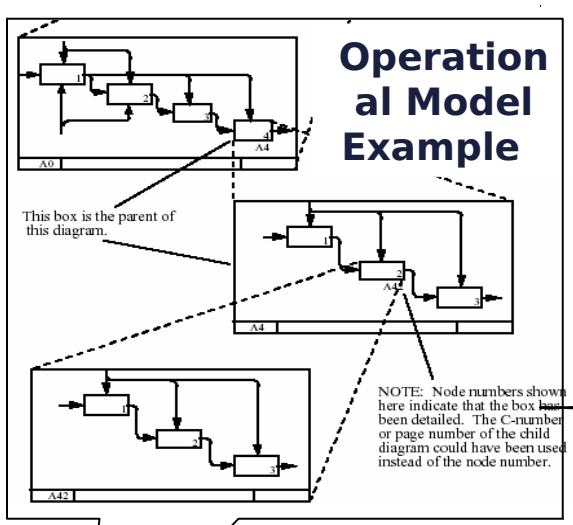
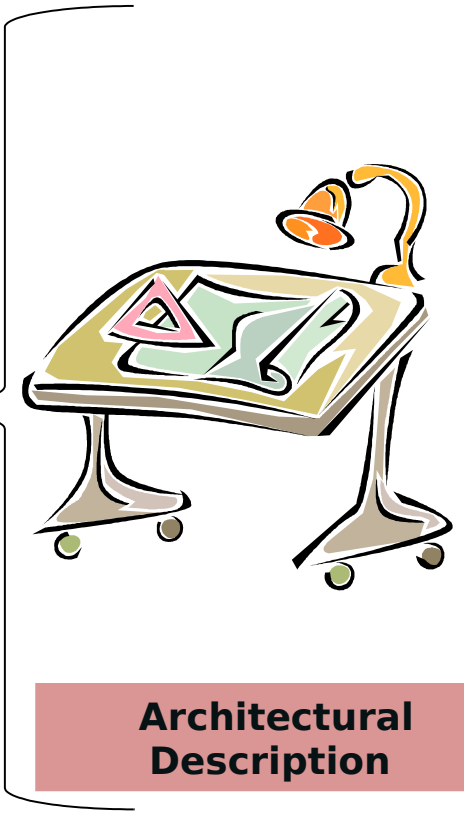
Architecture Models + Data = Architectural Description

- Things
- Individuals
- Types or classes of individuals or things


Operation al Model Example
This box is the parent of this diagram.
NOTE: Node numbers shown here indicate that the box has been detailed. The C-number or page number of the child diagram could have been used instead of the node number.



Architecture Data + Metadata

Architecture Models

Fit-for-Purpose (FFP)

Architectural Description

Fit-for-Purpose describes an architecture that is appropriately focused and directly support customer needs or improve the overall process undergoing change. The models provide *choices*, based upon the decision-maker needs.

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Key Concepts

- DoDAF is prescribed for the use and development of Architectural Descriptions in the Department
  - Specific DoDAF-described Models for a particular purpose are prescribed by process-owners
  - All the DoDAF-described Models do not have to be created. DoDAF V2.0 is “Fit-for-Purpose”, based on the decision-maker needs
- DoDAF V2.0 is data-centric and has shifted from the DoDAF V1.5 focus on Products
- DoDAF V2.0 prescribes a discipline for Architecture Development to determine the purpose and scope of the architecture before the data and Viewpoints are selected
- Node has been decomposed into more concrete concepts
- Examples will appear in the DoDAF Journal.

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Key Points

- The DoD Architecture Framework (DoDAF) version 2.0 is a significant improvement over past versions of the framework. It places much higher emphasis on the collection and organization of architecture data rather than on visualization.

- To better support data collection, the data model for DoD architecting has been revamped and is included within DoDAF 2.0. It is now much more concise and understandable than previous versions of the Core Architecture Data Model (CADM). As a result of these improvements, it has been renamed the DoDAF MetaModel (DM2) which includes:

  - A Conceptual Model focused for understanding architecture content by leadership and the operational community
  - A Logical Model for use by architects, analysts, and tool vendors
  - A Physical Exchange Specification for service developers and vendors that will enable sharing architecture information in a net-centric environment

Key Points Continued

- Another major shift in DoDAF 2.0 is the concept of “fit for purpose” architecture presentation. DoDAF 2.0, based on data collection and the removal of set boundaries between the operational, service/system, and technical views, will allow the architecture data to be organized in an “ad hoc” fashion, combining all relevant information tailored to specific decision maker requirements.

- DoDAF 2.0 is the culmination of accommodating the feedback on DoDAF 1.0 and DoDAF 1.5 as well as in depth analysis and incorporation of the lessons learned and best practices from the various architecture frameworks

DoDAF 2.0 Provides these Viewpoints

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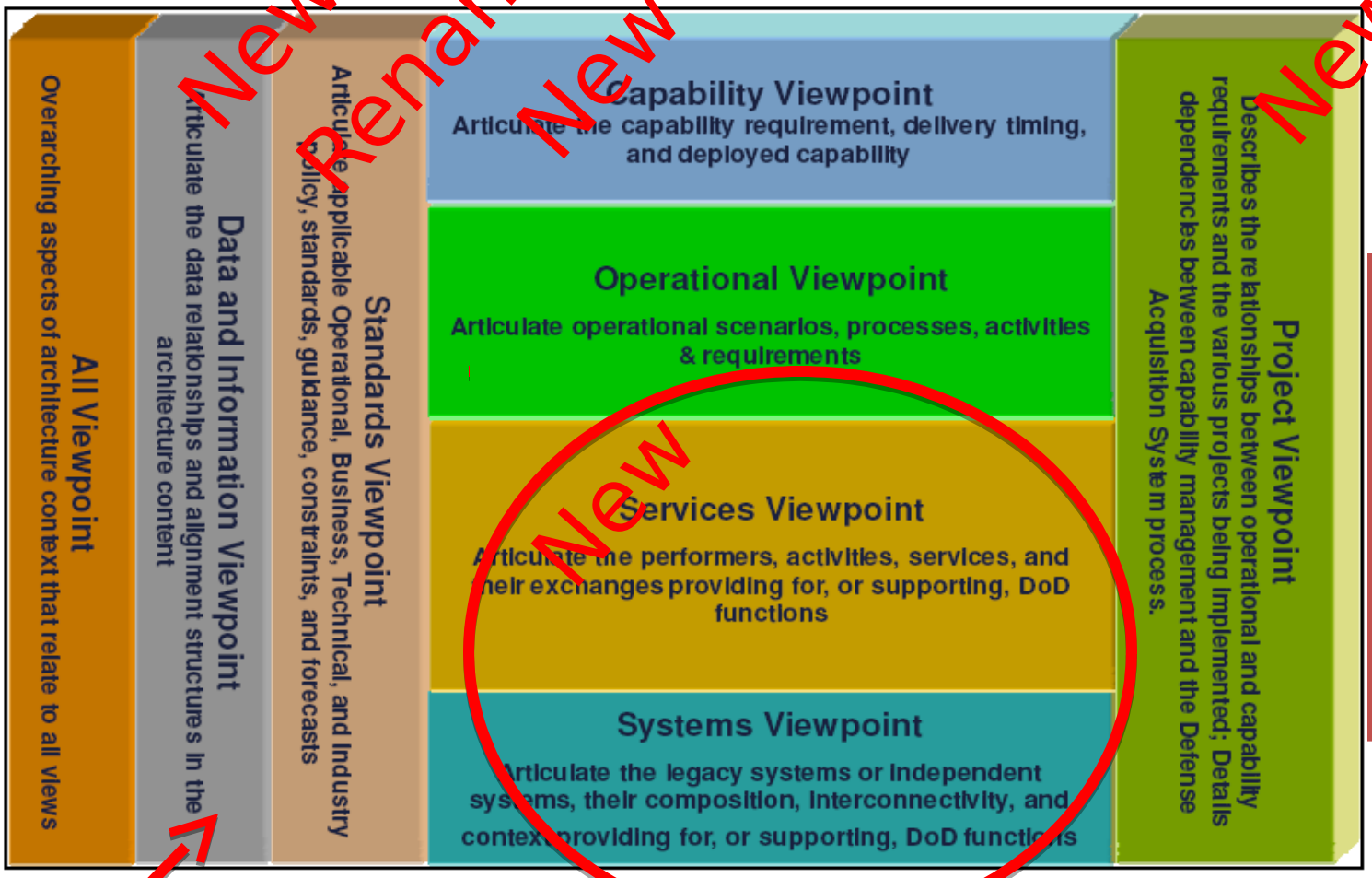
New
Renamed
New
New
All Viewpoint
Overarching aspects of architecture context that relate to all views
Data and Information Viewpoint
Articulate the data relationships and alignment structures in the architecture content
Standards Viewpoint
Articulate applicable Operational, Business, Technical, and Industry policy, standards, guidance, constraints, and forecasts
Capability Viewpoint
Articulate the capability requirement, delivery timing, and deployed capability
Operational Viewpoint
Articulate operational scenarios, processes, activities & requirements
Services Viewpoint
Articulate the performers, activities, services, and their exchanges providing for, or supporting, DoD functions
Systems Viewpoint
Articulate the legacy systems or independent systems, their composition, interconnectivity, and context providing for, or supporting, DoD functions
Project Viewpoint
Describes the relationships between operational and capability requirements and the various projects being implemented; Details dependencies between capability management and the Defense Acquisition System process.

Figure 3.4.2-1: Architecture Viewpoints in DoDAF V2.0

Architecture viewpoints are composed of data that has been organized to facilitate understanding.

Data models split out into separate Viewpoint in V2.0

Services views split out into separate viewpoint in V2.0

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All Viewpoints (AVs)

Viewpoints	Descriptions
AV-1 Overview and Summary Information	Describes a Project's Visions, Goals, Objectives, Plans, Activities, Events, Conditions, Measures, Effects (Outcomes), and produced objects.
AV-2 Integrated Dictionary	Architecture data repository with definitions of all terms used throughout the architecture data and presentations.

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AV-1: Overview and Summary Information

Description: The overview and summary information contained within the AV-1 provides executive-level summary information in a consistent form that allows quick reference and comparison between Architectural Descriptions.

ARCHITECTURE RELATIONSHIPS:

LINK AV-1 to all architecture viewpoints.

AV-1 Example

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Department of Defense
Business Enterprise Architecture 7.0
Overview and Summary Information (AV-1)
March 12, 2010

The AV-1 is an executive-level summary of the Department of Defense (DoD) Business Enterprise Architecture (BEA). The initial version of the AV-1 for BEA 7.0 focused the architecture development effort by documenting the scope of planned changes. This final release of the AV-1 includes findings and recommendations from the BEA 7.0 development effort.

Architecture Project Identification

Name	DoD Business Enterprise Architecture (BEA) 7.0
Architect	DoD Business Transformation Agency (BTA)
Developed By	Representatives from the DoD Business Mission Area (BMA) Core Business Missions (CBMs) and BTA
Assumptions and Constraints	The BEA 7.0: - Addresses only DoD Enterprise-level business and strategic plans, goals, objectives and strategies. - Makes maximum reuse of legacy BEA products with changes made as necessary. - Focuses on addressing business capability improvements and architecture gaps identified during BEA 7.0 planning sessions with stakeholder communities plus content and technical changes necessary to bring products into conformance with updates to the DoD Architecture Framework (DoDAF), the BEA Development Methodology (BDM), BEA Architecture Product Guide (APG) and the Enterprise Transition Plan (ETP).
Approval Authority	The Deputy Secretary of Defense, acting through the Defense Business Systems Management Committee (DBSMC)
Date	March 12, 2010

Point of Contact Information

LOE and Costs	Level of effort, projected and actual costs to develop the BEA may be requested from the Director, BTA.

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AV-1 Example Continued

pe: Architecture View(s) and Products Identification	
Products Developed	BEA 7.0 consists of the set of integrated architecture products - AV-1, AV-2, CV-2, CV-6, DIV-1, DIV-2, OV-2, OV-3, OV-5a, OV-5b, OV6a, OV-6c, SV-1, SV-5a, SV-6, SvcV-1, ScvV-5 and StdV-1 - necessary to comply with DoDAF, the APG, and BEA 7.0 requirements. The BEA products result from a collaborative effort of the Core Business Missions (CBMs) and represent an integration of business priorities documented and described throughout the various products.
Scope	The scope of the BEA is any function, process, rule, data, or technology that is required to be used in a standard manner to support or describe the business enterprise. This scope is further defined within six Business Enterprise Priorities (BEPs). The six BEPs have been identified as the highest priority transformation initiatives at the DoD Enterprise level and serve as the focus of the BEA 7.0 development effort. They are:
Time Frames Addressed	The BEA is the “To Be” architecture for DoD business transformation efforts. The current BEA “To Be” end state has intermediate time frames for implementation addressed in the ETP.
Organizations Involved	Development of the BEA involves organizations of the DoD Business Mission Area (BMA) CBMs (led by the Principal Staff Assistants (PSAs) at the enterprise level), as follows: Comptroller, Personnel & Readiness, and Acquisition Technology & Logistics, and is further supported by the Investment Review Boards (IRBs) to include: Financial Management (FM), Human Resources Management (HRM), Materiel Supply & Service Management (MSSM), Real Property & Installations Life-cycle Management (RPILM), and Weapon Systems Life-cycle Management (WSLM). The PSAs determine the BEPs based on the mission needs of the DoD.

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AV-1 Example Continued

Purpose and Viewpoint	
To provide a blueprint for DoD business transformation that helps to ensure that the right capabilities, resources and materiel are rapidly delivered to our warfighters: What they need, where they need it, when they need it, anywhere in the world. The BEA guides and constrains implementation of interoperable defense business system solutions as required by the National Defense Authorization Act (NDAA) and guides information technology (IT) investment management to align with strategic Business Capabilities as required by NDAA, Clinger-Cohen and supporting Office of Management and Budget (OMB) and Government Accountability Office (GAO) policy.	
- Who are our people, what are their skills, where are they located? - Who are our industry partners, and what is the state of our relationship with them? - What assets are we providing to support the warfighter, and where are these assets deployed? - How are we investing our funds to best enable the warfighting mission?	
The BEA is developed from a DoD BMA, tiered accountability, and business owner perspective focusing on the definition and documentation of activities, processes	
Joint Capability Areas	
capabilities that are both enterprise level and DoD-wide, and includes the systems and initiatives that support those capabilities.	
Security Caveats	

AV-1 Example Continued

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Context	
Mission	The BEA is essential to the transformation of business operations throughout the Department of Defense and to the delivery of enterprise-level business capability improvements that align to warfighter needs.
Goals	Establish foundational data standards and business rules. Support DoD investment management criteria for systems certification. Comply with evolving DoD Networks and Information Integration (NII) architecture guidance. Provide the foundation to accelerate outcome based architecture development and implementation. Describe DoD enterprise CBM end-to-end business processes as they relate to the six BEPs.
Rules, Criteria, and Conventions Followed	**Rules -** BEA products shall be developed and decomposed only to the level of detail required to adequately portray enterprise "To-Be" business capability improvements and transformation priorities. (This has been determined on a BEP by BEP basis). **Criteria and Conventions** – Guidance contained in the BDM, the APG, and Decision Memoranda (DM) and approved by BEA leadership provide the criteria and conventions followed during BEA development for methodology, content, and format.
Tasking for the BEA and Linkages to Other Architectures	**Tasking** – The 2005 National Defense Authorization Act (NDAA) requires that architecture be defined and used to assess and maintain investments throughout the BMA. **Linkages and Relationships** – The BEA is linked to the Federal Enterprise Architecture (FEA) through the DoD EA Reference Models and federated with Component and program architectures through tiered accountability.
Findings Recommendations	
and Excel, Adobe Acrobat	

AV-2: Integrated Dictionary

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Description: The AV-2 presents all the metadata used in an architecture. An AV-2 presents all the data as a hierarchy, provides a text definition for each one and references the source of the element (e.g., DoDAF Meta-model, IDEAS, a published document or policy).

ARCHITECTURE RELATIONSHIPS:

LINK AV-2 to:

AV-1. AV-2 defines capabilities by identifying overall objectives of the system, what are the goals of the system, and what

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AV-2: Integrated Dictionary Continued

ARCHITECTURE RELATIONSHIPS:

LINK AV-2 to:

DIV-2 (OV-7). AV-2 defines resources by identifying the major objects and data elements (entities) of the system from DIV-2.

DIV-3 (SV-11). AV-2 defines resources by identifying the major objects and data elements (entities) of the system from DIV-3

OV-2. AV-2 defines resources by identifying the relationships among the resources from OV-2.

OV-3. AV-2 defines resources by identifying the relationships

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AV-2: Integrated Dictionary Continued

ARCHITECTURE RELATIONSHIPS:

LINK AV-2 to:

OV-4. AV-2 defines performers by identifying those that actively contribute toward the completion of activities or the achievement of an objective from OV-4.

OV-5. AV-2 defines activities by identifying the major processes of the system that are needed to provide the desired capabilities from OV-5.

OV-6c. AV-2 defines activities and performers by Breaking

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AV-2 Example

Name	Description	Node Type	Assigned Activities
Ext Air Assets	Aerospace forces that have the inherent capability to provide support to CSAR/SOF mission tasking.	External Node	_Ext_ Provide Air Support + "PILOT" _Ext_ Provide Voice Network + "PILOT"
Ext Air Force Weather Agency	Provides weather forecasts en-route and over the target area	External Node	_Ext_ Provide Weather Data + "Weather Forecaster"

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Operational Viewpoints (OVs)

Viewpoints	Descriptions
OV-1: High Level Operational Concept Graphic	High-level graphical/textual description of operational concept
OV-2: Operational Resource Flow Description	Operational connectivity and information exchange needlines
OV-3: Operational Resource Flow Matrix	Information exchanged and the relevant attributes of that exchange
OV-4: Organizational Relationships Chart	Organizational, role, or other relationships among Organizations
OV-5: Operational Activity Model	Capabilities, operational activities, relationships among activities, inputs, and outputs; overlays can show cost, performers or other pertinent information
OV-6c: Event-Trace Description	One of three models used to describe operational activity - traces actions in a scenario or sequence of events

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OV-1: High Level Operational Concept Graphic

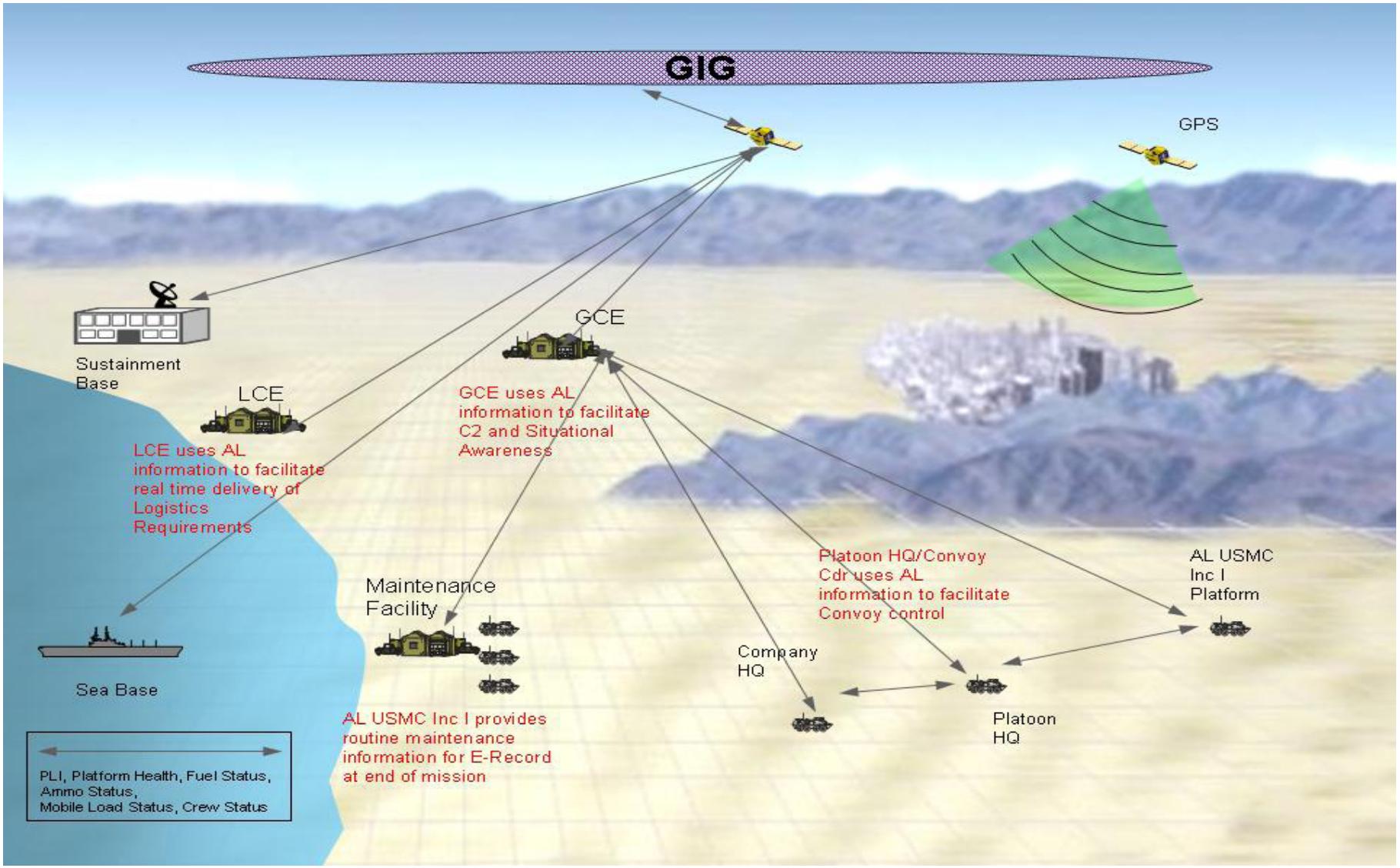
Description: The OV-1 provides a graphical depiction of what the architecture is about and an idea of the players and operations involved. An OV-1 can be used to orient and focus detailed discussions. Its main use is to aid human communication, and it is intended for presentation to high-level decision-makers.

ARCHITECTURE DATA ELEMENT RELATIONSHIPS:

LINK OV-1 to:

OV-2. Organizations, organization types, and/or human roles, depicted in OV-1 should be traceable to operational resources in OV-2; relationships in OV-1 should trace to needlines in OV-2.

OV-1 Example


GIG
GPS
GCE
Sustainment Base
LCE
GCE uses AL information to facilitate C2 and Situational Awareness
LCE uses AL information to facilitate real time delivery of Logistics Requirements
Maintenance Facility
Platoon HQ/Convoy Cdr uses AL information to facilitate Convoy control
AL USMC Inc I Platform
Company HQ
Platoon HQ
Sea Base
AL USMC Inc I provides routine maintenance information for E-Record at end of mission
PLI, Platform Health, Fuel Status, Ammo Status, Mobile Load Status, Crew Status

OV-1 Example

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HC-130 RECAP PERSONNEL RECOVERY OPERATIONS HIGH LEVEL OPERATIONAL CONCEPT GRAPHIC (OV-1)
★ Recovery OPS (Vehicle) (Joint, RMC)
★ Recovery OPS (Team) (Joint, RMC)
★ Air Refueling (Joint, AMC)
★ FARP
2 GIG
8 Airborne C4ISR (Joint, Multinational, AMC)
9 Strategic Air Refueler
1 Receivers (Recovery Vehicle, etc)
0 HC-130 Recap
5 Recovery Team
3 Force Protection RESCORT, RESCAP, SEAD (Joint, Multinational)
4 Isolated Personnel (Joint, Multinational)
7 C4ISR (Land/Surface) (Joint, Multinational)
6 Airfield
Threat
★ PR/ RO Operational Task
Forward Edge of Battle Area (FEBA)
Fire Support Coordination Line (FSCL)
Operational Environment Awareness
Information Exchange

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OV-2: Operational Resource Flow Description

Description: The OV-2 depicts Operational Needlines that indicate a need to exchange resources.

ARCHITECTURE DATA ELEMENT RELATIONSHIPS:

Link OV-2 to:

OV-1. Organizations, organization types, and/or human roles, depicted in OV-1 should be traceable to operational resources in OV-2; relationships in OV-1 should trace to needlines in OV-2.

OV-3. A needline in OV-2 maps to one or more information exchanges in OV-3.

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OV-2: Operational Resource Flow Description Continued

ARCHITECTURE DATA ELEMENT RELATIONSHIPS CONTINUED:

Link OV-2 to:

OV-4. Organizations, organization types, and/or human roles in an

OV-4 may map to one or more operational resource in an OV-2,

indicating that the resource represents the organization.

OV-5. The activities annotating an operational resource in an OV-2

map to the activities described in an OV-5. Similarly, OV-5 should

document the operational resources that participate in each

OV-2: Operational Resource Flow Description Continued

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ARCHITECTURE DATA ELEMENT RELATIONSHIPS CONTINUED:

Link OV-2 to:

OV-6c. Lifelines in OV-6c should map to operational resources in OV-2.

SV-1. Operational resources in an OV-2 may be supported by one or more systems in SV-1 (indicating that the operational resources owns/uses the system). A needline in OV-2 may map to one or more interfaces in SV-1, and an interface in SV-1 maps to one or more needlines in OV-2.

OV-2 Example

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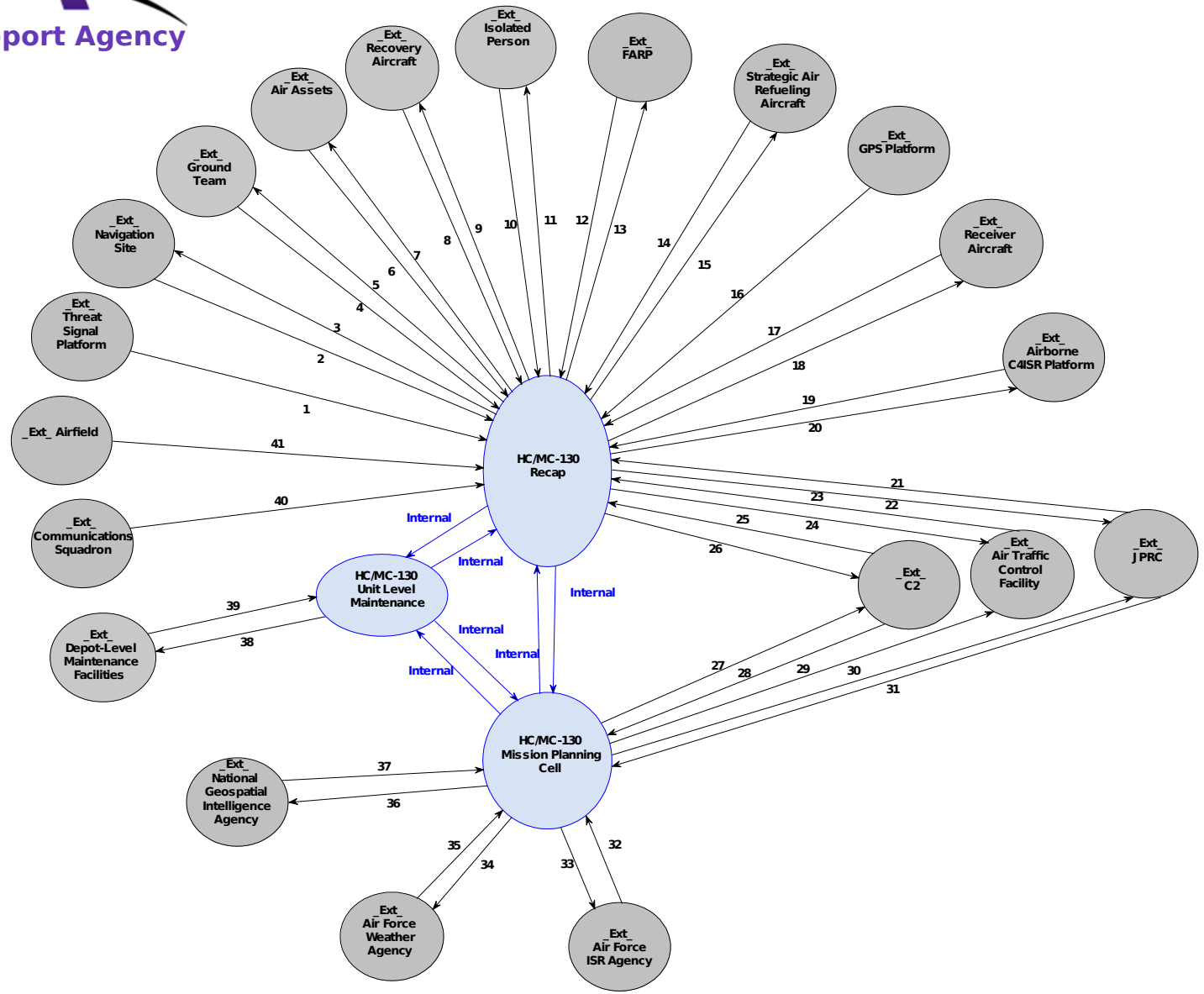

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OV-3: Operational Resource Flow Matrix

Description: The OV-3 identifies the resource transfers that are necessary to support operations to achieve a specific operational task.

NOTE: The OV-3 information can be presented in tabular form. DoDAF V2.0 does not prescribe the column headings in an OV-3 Matrix.

ARCHITECTURE DATA ELEMENT RELATIONSHIPS:

Link OV-3 to:

OV-2. A needline in OV-2 maps to one or more resource (information) exchanges in OV-3.

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OV-3: Operational Resource Flow Matrix Continued

ARCHITECTURE DATA ELEMENT RELATIONSHIPS CONTINUED:

Link OV-3 to:

OV-5. An information exchange in OV-3 should map to one or more information flows (an external Input, an external output, or an output from one operational activity mapped to an input to another) in OV-5, if OV-5 decomposes to a level that permits such a mapping. Above that level of decomposition, a single information flow in an OV-5 may map to more than one information exchange (or none, if the information flow does not cross node boundaries).

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OV-3 Example

Needline Identifier	Information Exchange Identifier	Information Element Name and Identifier
DF_NMIS	Point-of-Sale Data	N/A
HIS_NMIS	Patient Data	N/A
Patient_NCM	Meal Order	N/A
PV_DFS	Invoice	N/A
Kitchen_Patient	Meal Tray	N/A

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OV-3 Example Continued

Content	Scope	Accuracy	Language
Point-of-sale data from dining facilities and other entities serviced by Medical Food Management.	Recommended new MHS Activity: Manage Medical Food	100%	US English
Patient data including admissions, discharges, and tranfers.	Recommended new MHS Activity: Manage Medical Food	100%	US English
Meal order received for processing.	Recommended new MHS Activity: Manage Medical Food	100%	US English
Invoice of items delivered.	Recommended new MHS Activity: Manage Medical Food	100%	US English
Prepared meal including ordered recipe items, nourishments, etc.	Recommended new MHS Activity: Manage Medical Food	100%	US English

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OV-3 Example Continued

Producer		Consumer	
Sending Op Node Name and Identifier	**Sending Op Activity Name and Identifier**	**Receiving Op Node Name and Identifier**	**Receiving Op Activity Name and Identifier**
Ext Dining Facility	_Ext_ Provide Point-of-Sale Data	Citrix Server	Manage Foodservice Operations
Ext Hospital Information System	_Ext_ Provide Patient Data	Citrix Server	Process HL7 ADT
Ext Patient Room	_Ext_ Receive Meal	Nutrition Care Management / Diet Office	Process Meal Orders (Room Service)
Ext Prime Vendor	_Ext_ Deliver Items	Dining Facility Storage	Receive Items into Inventory
Central Kitchen	Assemble Ordered Tray	_Ext_ Patient Room	_Ext_ Receive Meal

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OV-3 Example Continued

Performance Attributes		Information Assurance				
Periodicity	**Timeliness**	**Access Control**	**Availability**	**Confidentiality**	**Dissemination Control**	**Integrity**
09 - EVENT DRIVEN	M = Moderate (1-10 Seconds)	3 = Password and Identification Document	01 = LOW--BEST EFFORT	04 = NEED TO KNOW	02 = PRIVATE--IAW PRIVACY ACT	02 = NOT REQUIRED
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09 - EVENT DRIVEN	M = Moderate (1-10 Seconds)	3 = Password and Identification Document	01 = LOW--BEST EFFORT	04 = NEED TO KNOW	02 = PRIVATE--IAW PRIVACY ACT	02 = NOT REQUIRED

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OV-3 Example Continued

Nature of Transaction				
Mission/ Scenario UJTL or METL	**Transaction Type**	**Interoperability Level Required**	**Triggering Event**	**Criticality**
MHS Activity 2.6.1 Manage and Report Incidents	Collaborate	N/A	**Point-of-Sale Data**	6 = Administrative
MHS Activity 2.6.1 Manage and Report Incidents	Collaborate	N/A	**Patient Data**	6 = Administrative
MHS Activity 2.6.1 Manage and Report Incidents	Collaborate	N/A	**Meal Order**	6 = Administrative
MHS Activity 2.6.1 Manage and Report Incidents	Collaborate	N/A	**Invoice**	6 = Administrative
MHS Activity 2.6.1 Manage and Report Incidents	Collaborate	N/A	**Meal Tray**	6 = Administrative

OV-3 Example Continued

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Security					Comments
Accountability	Protection (Type Name, Duration, Data)	Classification	Classification Caveat	CMT	
HIPAA, Privacy Act of 1974, 5 USC 552 and 10 USC 1102	1 = None	03 = FOR OFFICIAL USE ONLY	"98 -NOT SPECIFIED"	N	Point-of-Sale data currently manually input into NMIS. Objective requirement for automated interface between Dining Facility Point-of-Sale system and NMIS.
HIPAA, Privacy Act of 1974, 5 USC 552 and 10 USC 1102	1 = None	03 = FOR OFFICIAL USE ONLY	"98 -NOT SPECIFIED"	Y	
HIPAA, Privacy Act of 1974, 5 USC 552 and 10 USC 1102	1 = None	03 = FOR OFFICIAL USE ONLY	"98 -NOT SPECIFIED"	Y	Meal orders currently taken via phone interface between a patient and a Diet Clerk. Objective requirement to automate this interface.
HIPAA, Privacy Act of 1974, 5 USC 552 and 10 USC 1102	1 = None	03 = FOR OFFICIAL USE ONLY	"98 -NOT SPECIFIED"	Y	
HIPAA, Privacy Act of 1974, 5 USC 552 and 10 USC 1102	1 = None	03 = FOR OFFICIAL USE ONLY	"98 -NOT SPECIFIED"	Y	Meal Tray not an "information" exchange.

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OV-3 Example 2

	Information Element Description				
Needline Identifier	Information Element Name and Identifier	Content	Scope	Accuracy	Language
4	_Ext_ Beneficiary Dependent's Information	Personal data	MHS Enterprise	99%	English
4	_Ext_ Beneficiary Information	Personal data	MHS Enterprise	99%	English
1	_Ext_ Customer Demographic Data	Personal data	MHS Enterprise	99%	English

OV-3 Example 2 Continued

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Producer		Consumer	
Sending Op Node Name and Identifier	Sending Op Activity Name and Identifier	Receiving Op Node Name and Identifier	Receiving Op Activity Name and Identifier
Ext DMDC	_Ext_ Provide DEERS Information	EWS-R	Schedule Services
Ext DMDC	_Ext_ Provide DEERS Information	EWS-R	Schedule Services
Ext External User	_Ext_ Establish Beneficiary Profile	EWS-R	Register Beneficiaries

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OV-3 Example 2 Continued

Nature of Transaction				
Mission/Scenario UJTL or METL	Transaction Type	Interoperability Level Required	Triggering Event	Criticality
SN 4.3.3 ~ Coordinate Defensewide Health Services	Direct	07 = Level 1 - Connected Level (Peer to Peer)	Scheduling Services	4 = Mission Critical
SN 4.3.3 ~ Coordinate Defensewide Health Services	Direct	07 = Level 1 - Connected Level (Peer to Peer)	Scheduling Services	4 = Mission Critical
SN 4.3.3 ~ Coordinate Defensewide Health Services	Direct	07 = Level 1 - Connected Level (Peer to Peer)	Registration	5 = Mission Support

OV-3 Example 2 Continued

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Performance Attributes		Information Assurance				
Periodicity	Timeliness	Access Control	Availability	Confidentiality	Dissemination Control	Integrity
Seconds	"F: Fast (1-10 sec)"	05 = ID CERT/ACL	02 = MED--SPECIFIC RESOURCES ALLOCATED	04 = NEED TO KNOW	02 = PRIVATE--IAW PRIVACY ACT	04 = MANDATORY
Seconds	"F: Fast (1-10 sec)"	05 = ID CERT/ACL	02 = MED--SPECIFIC RESOURCES ALLOCATED	04 = NEED TO KNOW	02 = PRIVATE--IAW PRIVACY ACT	04 = MANDATORY
Seconds	"F: Fast (1-10 sec)"	05 = ID CERT/ACL	02 = MED--SPECIFIC RESOURCES ALLOCATED	04 = NEED TO KNOW	02 = PRIVATE--IAW PRIVACY ACT	04 = MANDATORY

OV-3 Example 2 Continued

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Security			
Accountability	Protection (Type Name, Duration, Data)	Classification	Classification Caveat
Attributed to specific actor(s)	1 = None	FOUO	"14 - PROPRIETARY NR OUTSIDE US GOVERNMENT "
Attributed to specific actor(s)	1 = None	FOUO	"14 - PROPRIETARY NR OUTSIDE US GOVERNMENT "
Attributed to specific actor(s)	1 = None	FOUO	"14 - PROPRIETARY NR OUTSIDE US GOVERNMENT "

OV-4: Organizational Relationships Chart

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Description: The OV-4 addresses the organizational aspects of an Architectural Description.

ARCHITECTURE DATA ELEMENT RELATIONSHIPS:

Link OV-4 to:

OV-2. Organizations, organization types, and/or human roles in an OV-4 may map to one or more operational resources in an OV-2, indicating that the resource represents the organization.

OV-4 Generic Example

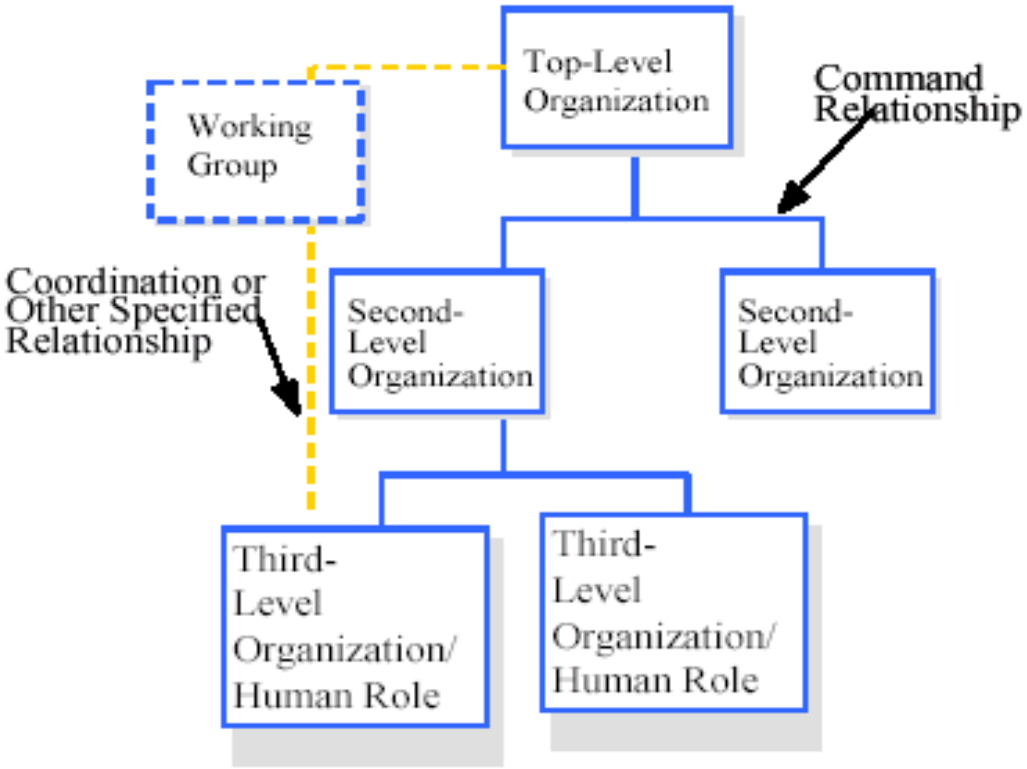

Figure 4-11. Organizational Relationships Chart (OV-4) – Template

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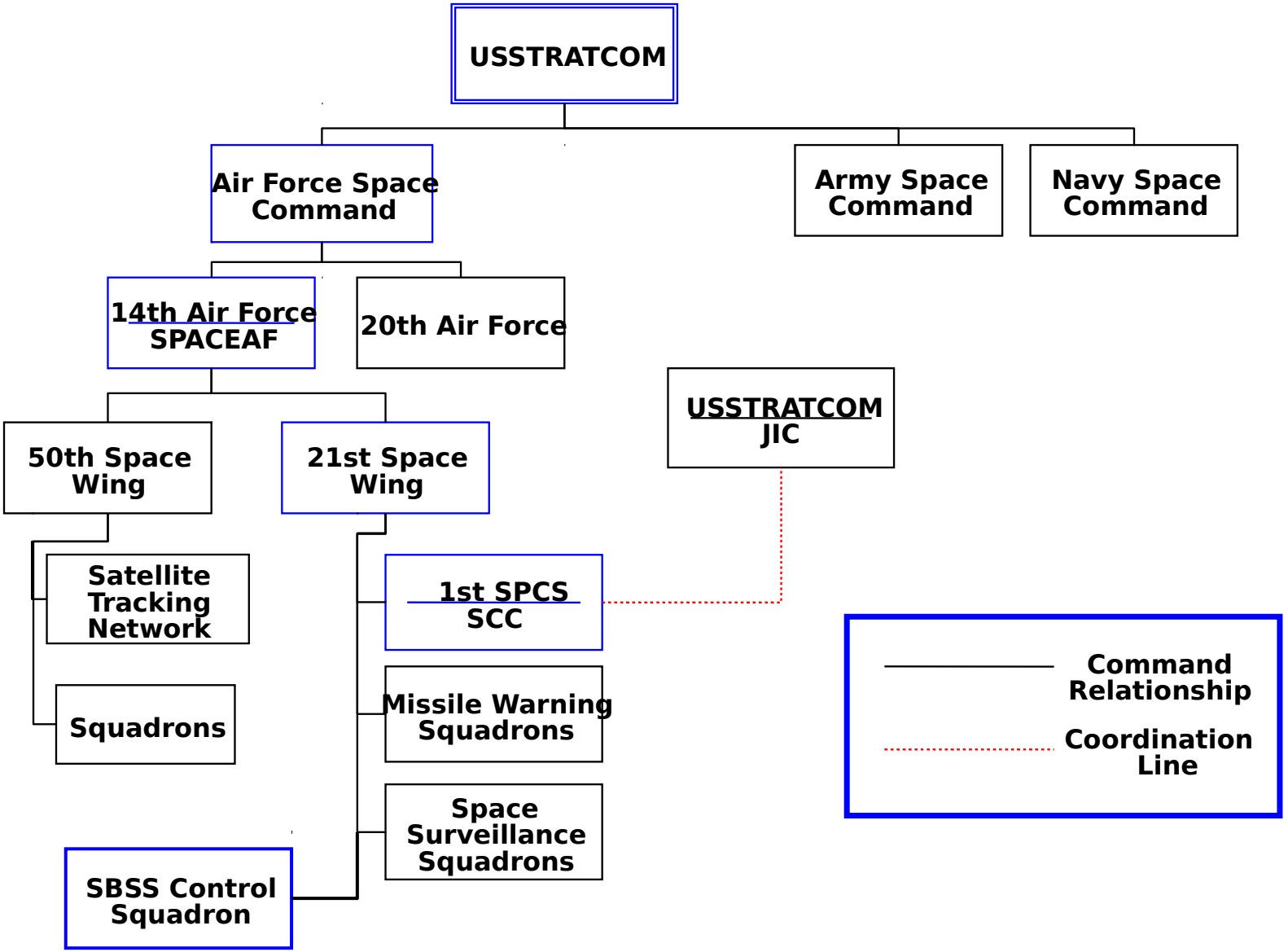
OV-4 Example



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OV-5a: Operational Activity Decomposition Tree
OV-5b: Operational Activity Model

Description: The OV-5s and OV-2 Operational Resource Flow Description model are, to a degree, complements of each other. The OV-5s focuses on the operational activities whereas OV-2 Operational Resource Flow Description model focuses on the operational activities in relation to locations.

Note: The OV-5a helps provide an overall picture of the activities involved and a quick reference for navigating the OV-5b

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OV-5a: Operational Activity Decomposition Tree
OV-5b: Operational Activity Model

ARCHITECTURE DATA ELEMENT RELATIONSHIPS:

Link OV-5 to:

OV-2. The activities annotating an operational resource in an OV-2 map to the activities described in an OV-5. Similarly, OV-5 should document the operational resources that participate in each operational activity.

OV-3. An information exchange in an OV-3 should map to one or more information flows (an external input, an external output, or an output from one operational activity mapped to an input to another)

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OV-5a: Operational Activity Decomposition Tree
OV-5b: Operational Activity Model

ARCHITECTURE DATA ELEMENT RELATIONSHIPS CONTINUED:

Link OV-5s to:

OV-6c. Events in OV-6c map to inputs and outputs of operational activities.

SV-5s. Operational activities in SV-5s match operational activities in OV-5s.

SvcV-5. Operational activities in SvcV-5 match operational activities in OV-5s.

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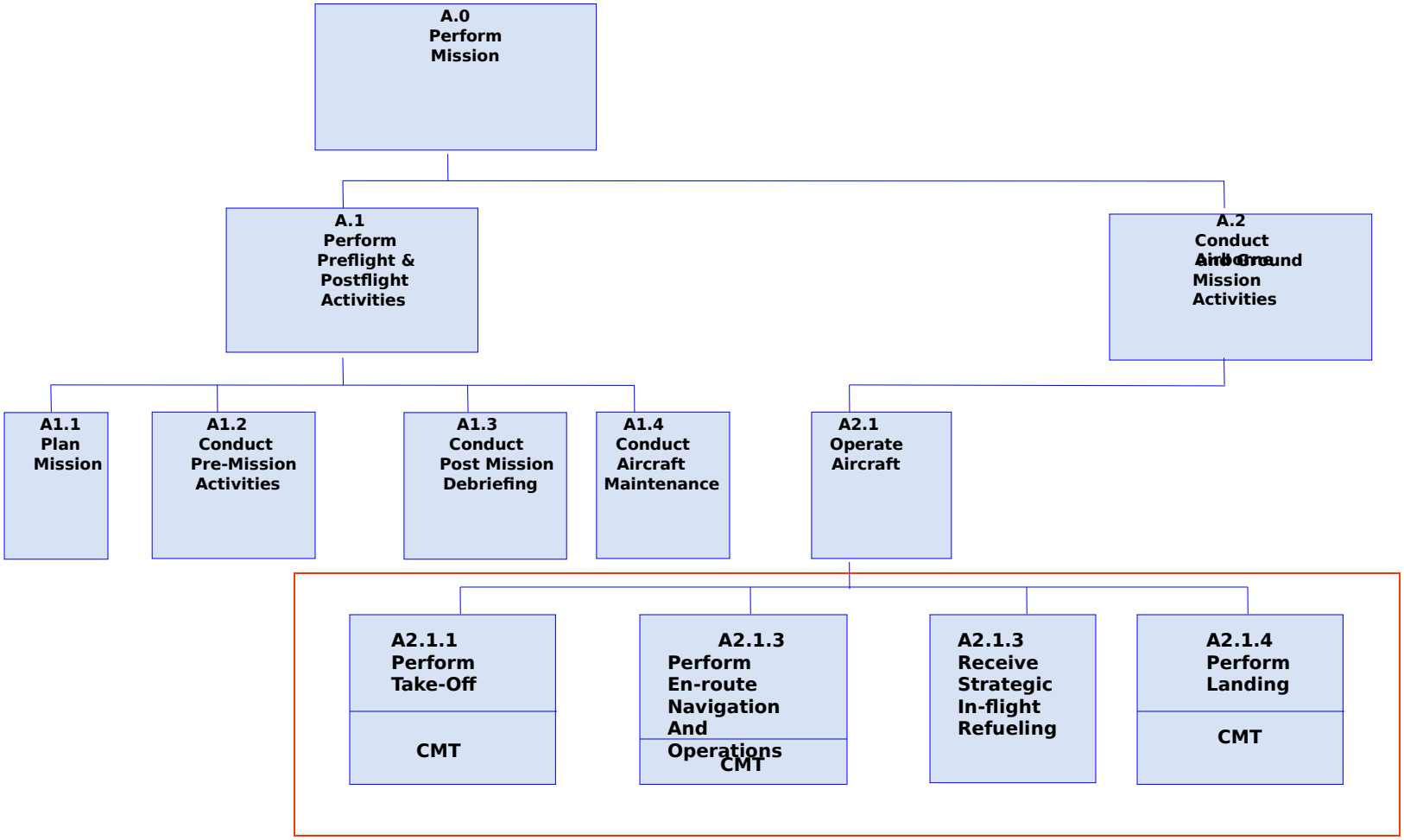
OV-5a Example



OV-5b Example

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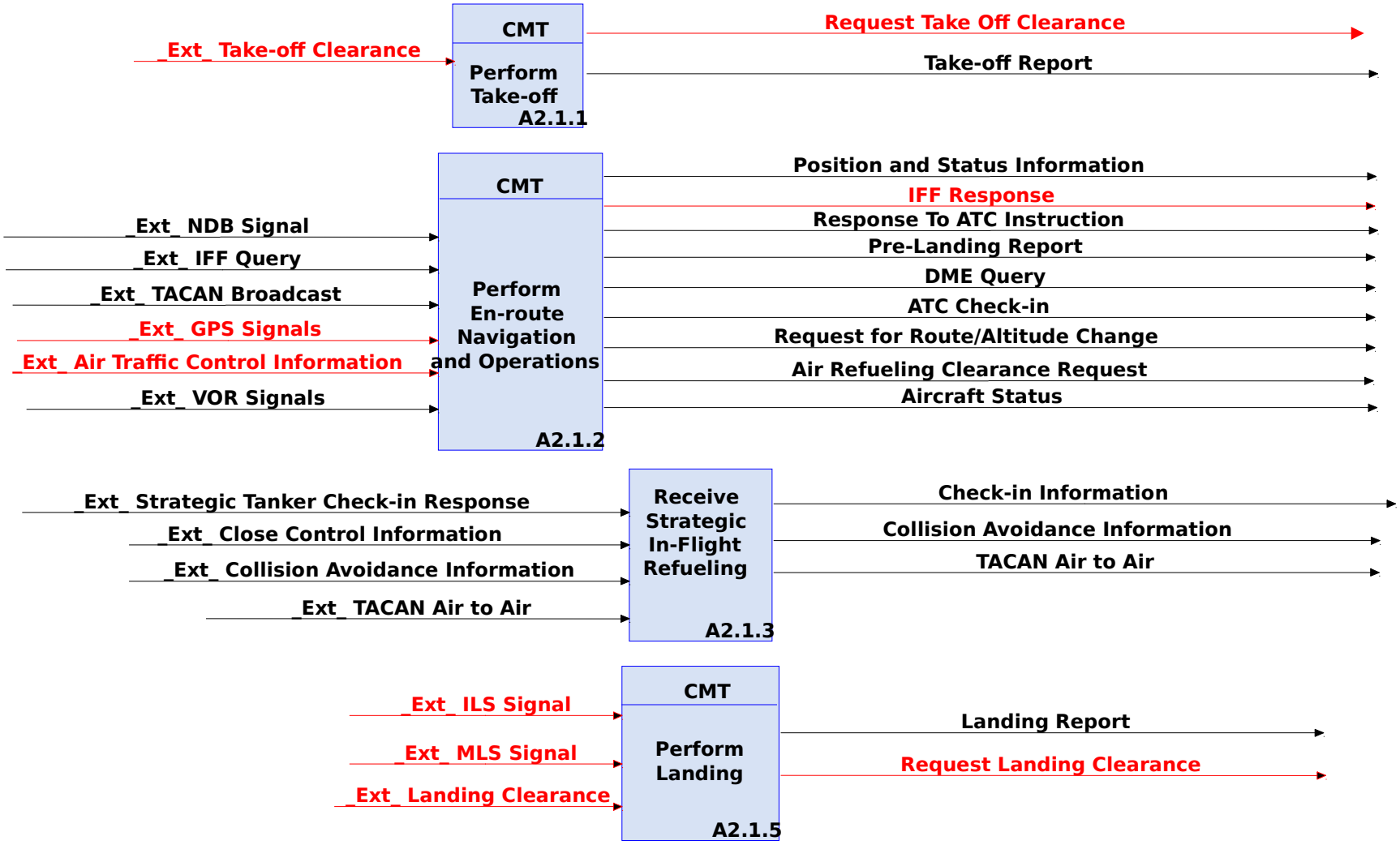
Red Text/Lines identify Critical Mission Threads



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OV-6c: Event-Trace Description

Description: The OV-6c is valuable for moving to the next level of detail from the initial operational concepts. An OV-6c model helps define interactions and operational threads.

ARCHITECTURE DATA ELEMENT RELATIONSHIPS:

Link OV-6c to:

OV-2. Lifelines in OV-6c should map to operational resources in OV-2.

OV-3. Events in OV-6c map to triggering events in OV-3.

OV-5s. Events in OV-6c map to inputs and outputs of operational activities.

OV-6c: Event-Trace Description

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ARCHITECTURE DATA ELEMENT RELATIONSHIPS CONTINUED:

Link OV-6c to:

SV-5s/SvcV-5. A capability associated with a specific sequence in OV-6c matches a capability in SV-5s/SvcV-5.

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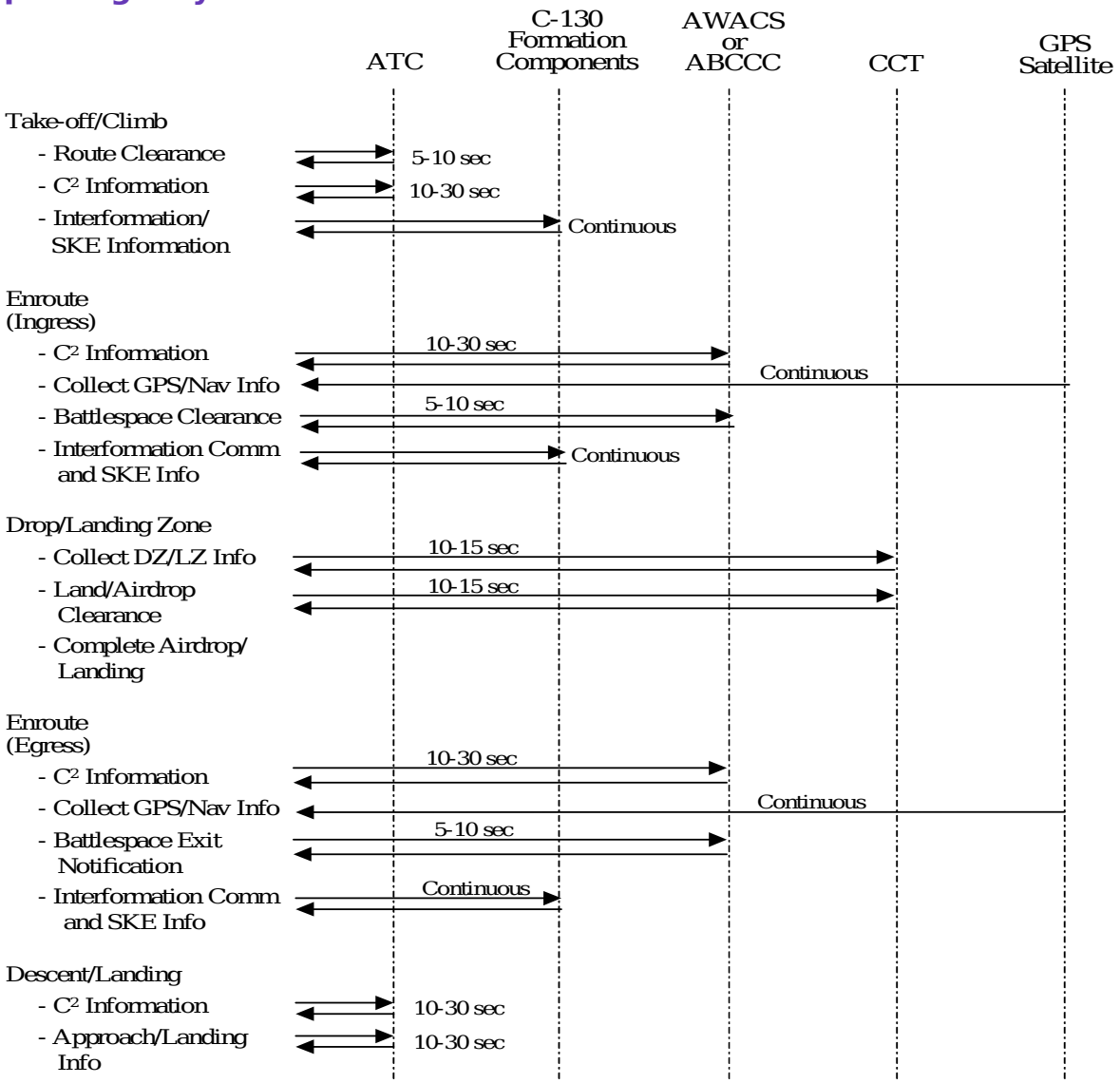
OV-6c Example



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System Viewpoints (SVs)

Viewpoints	Descriptions
SV-1 Systems Interface Description	Identification of systems and system items and their interconnections
SV-2 Systems Communications Description	Systems and system items and their related communications laydowns
SV-4 Systems Functionality Description	Functions performed by systems and the system data flows among system functions
SV-5a Operational Activity to Systems Function Traceability Matrix	Mapping of system functions back to operational activities
SV-5b Operational Activity to Systems Traceability Matrix	Mapping of systems back to capabilities or operational activities
SV-6 Systems Data Exchange Matrix	Provides details of system data elements being exchanged between systems and the

SV-1: Systems Interface Description

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Description: A SV-1 can be used simply to depict Systems and sub-systems and identify the Resource Flows between them.

ARCHITECTURE DATA ELEMENT RELATIONSHIPS:

Link SV-1 to:

OV-2. Operational resources in OV-2 may be supported by one or more systems in SV-1 (indicating that the operational resource owns/uses the system). A needline in OV-2 may map to one or more interfaces in an SV-1, and an interface in SV-1 maps to one

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SV-1: Systems Interface Description

ARCHITECTURE DATA ELEMENT RELATIONSHIPS CONTINUED:

Link SV-1 to:

SV-2. An interface in SV-1 is implemented by Systems, their ports,
and the Resource Flows between those ports **(**communications
link(s) or communications network(s)) in SV-2.

SV-4. SV-4 defines system functions that are executed by systems
defined in SV-1.

SV-5 Systems in SV-1 match systems in SV-5.

SV-6 Each system data element appearing in a system

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SV-1: Systems Interface Description Continued

ARCHITECTURE DATA ELEMENT RELATIONSHIPS CONTINUED:

Link SV-1 to:

StdV-1 (TV-1). Technical standards in StdV-1 (TV-1) apply to and sometimes constrain systems, subsystems, and system hardware/software items in SV-1.

StdV-2 (TV-2). Timed standard forecasts in StdV-2 (TV-2) impact systems, subsystems and system hardware/software items in SV-1.

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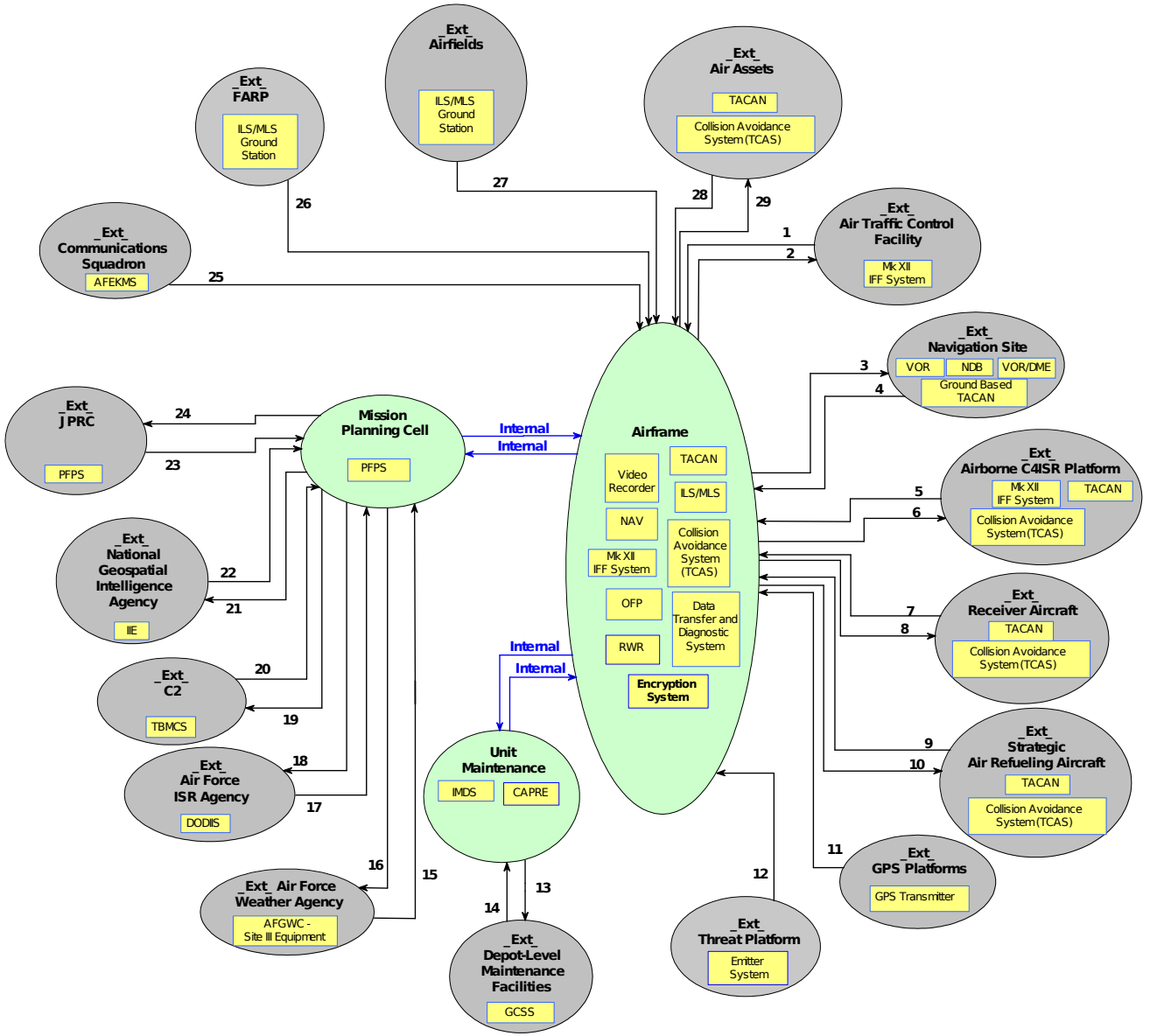
SV-1 Example



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SV-2: Systems Resource Flow Description

Description: A SV-2 comprises Systems, their ports, and the
Resource Flows between those ports. The architect may choose to create a diagram for each Resource Flow for all Systems or to show all the Resource Flows on one diagram if possible.

ARCHITECTURE DATA ELEMENT RELATIONSHIPS:

Link SV-2 to:

SV-1. An interface in SV-1 is implemented by Systems, their ports,
and the Resource Flows between those ports (communications
link(s) or communications network(s)) in SV-2.

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SV-2: Systems Resource Flow Description Continued

ARCHITECTURE DATA ELEMENT RELATIONSHIPS CONTINUED:

Link SV-2 to:

StdV-1 (TV-1). Technical standards in StdV-1 (TV-1) apply to and sometimes constrain communications systems, communications links, and communications networks in SV-2.

StdV-2 (TV-2). Timed standard forecasts in StdV-1 (TV-2) impact communications systems, communications links, and communications networks in SV-2.

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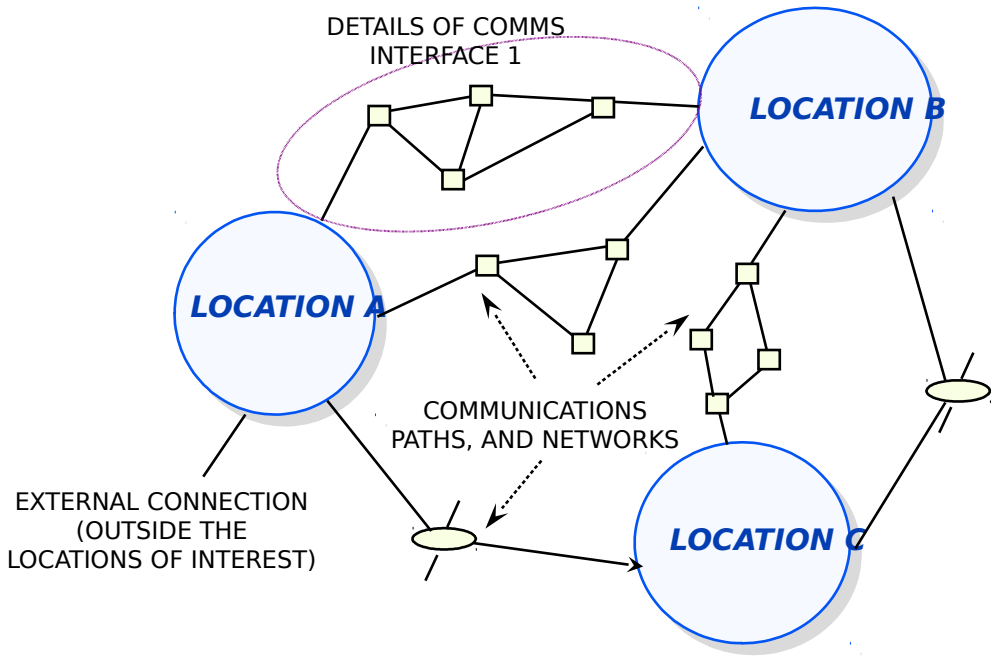
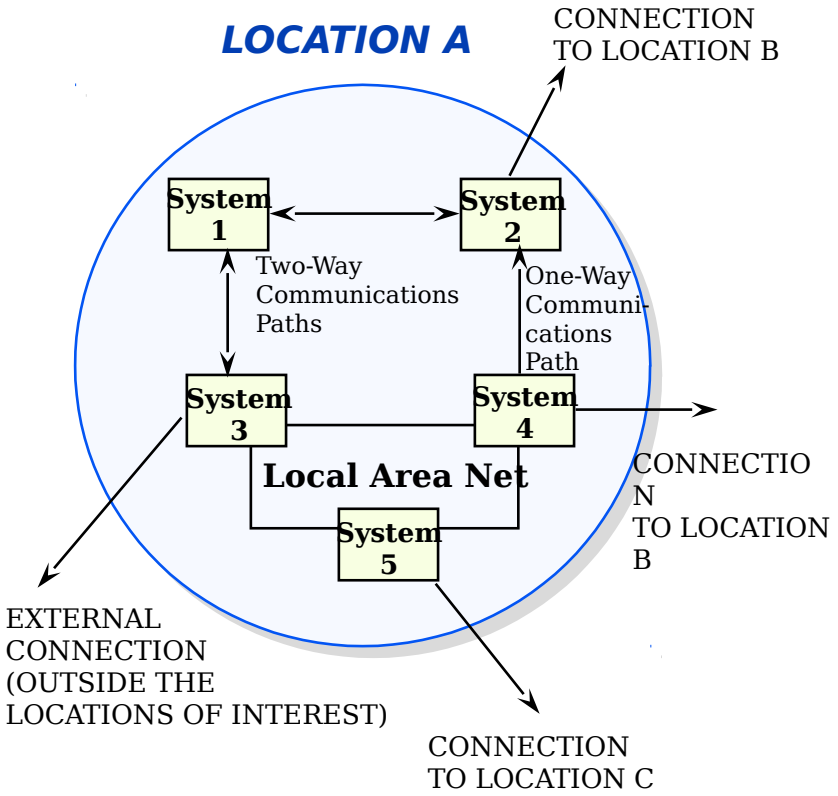
SV-2 Example

HIGH LEVEL PERSPECTIVE



DETAILED PERSPECTIVE



SV-2 documents the communications network details, decomposing the interfaces from the System Interface Description

SV-2 Example Continued

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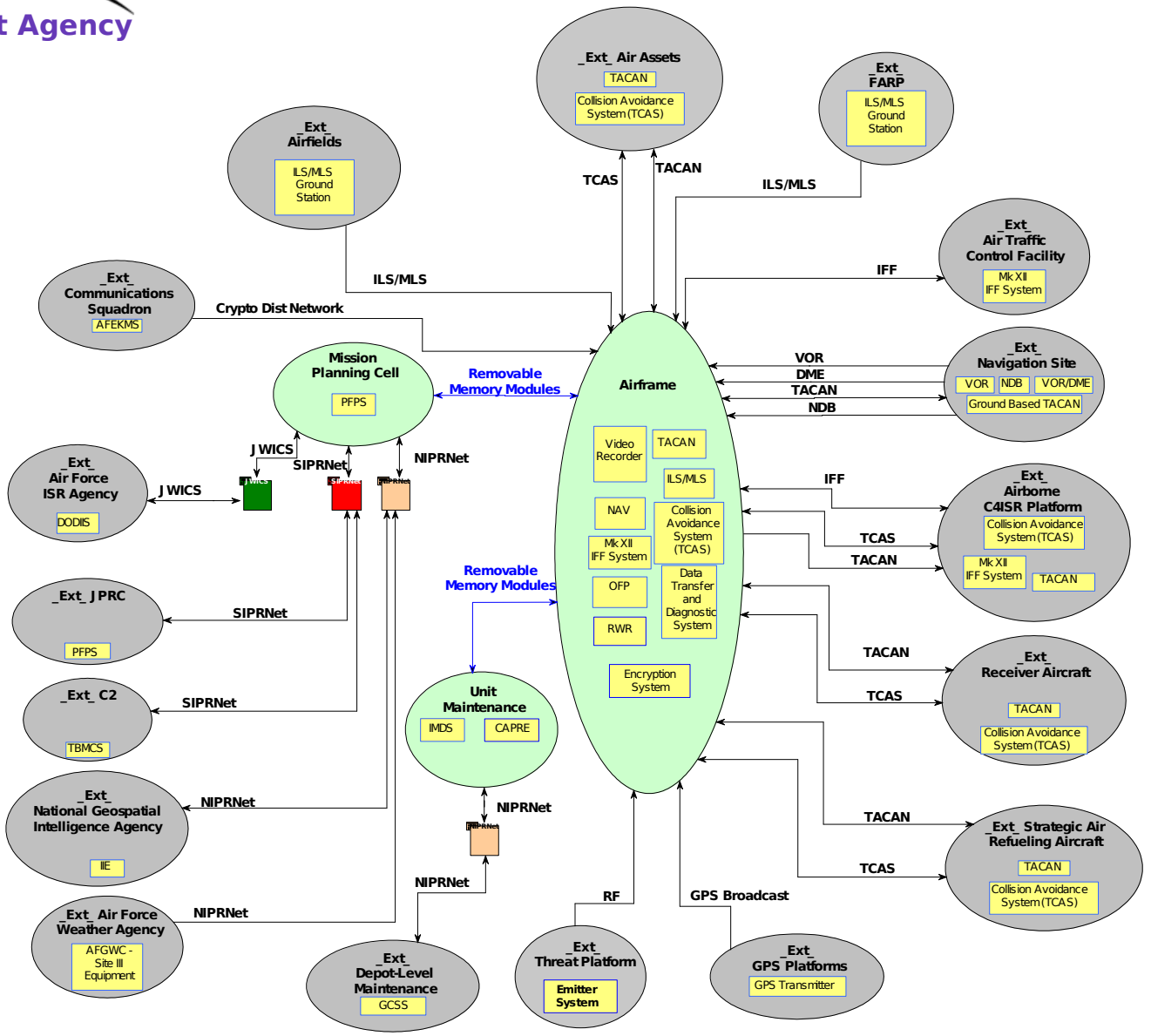

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SV-4: Systems Functionality Description

Description: The primary purposes of SV-4 are to develop a clear description of the necessary data flows that are input (consumed) by and output (produced) by each resource, to ensure that the functional connectivity is complete (i.e., that a resource's required inputs are all satisfied), and to ensure that the functional decomposition reaches an appropriate level of detail.

ARCHITECTURE DATA ELEMENT RELATIONSHIPS:

Link SV-4 to:

SV-1 – SV-4 defines system functions that are executed

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SV-4: Systems Functionality Description Continued

ARCHITECTURE DATA ELEMENT RELATIONSHIPS CONTINUED:

Link SV-4 to:

SV-5. System functions in SV-4 should map one-to-one to system functions in SV-5.

SV-6. System resource flows (data flows) in SV-4 should map to system resource flows (data elements) appearing in system resource (data) exchanges of SV-6.

StdV-1 (TV-1). Technical standards from StdV-1 (TV-1) apply to system functions in SV-4.

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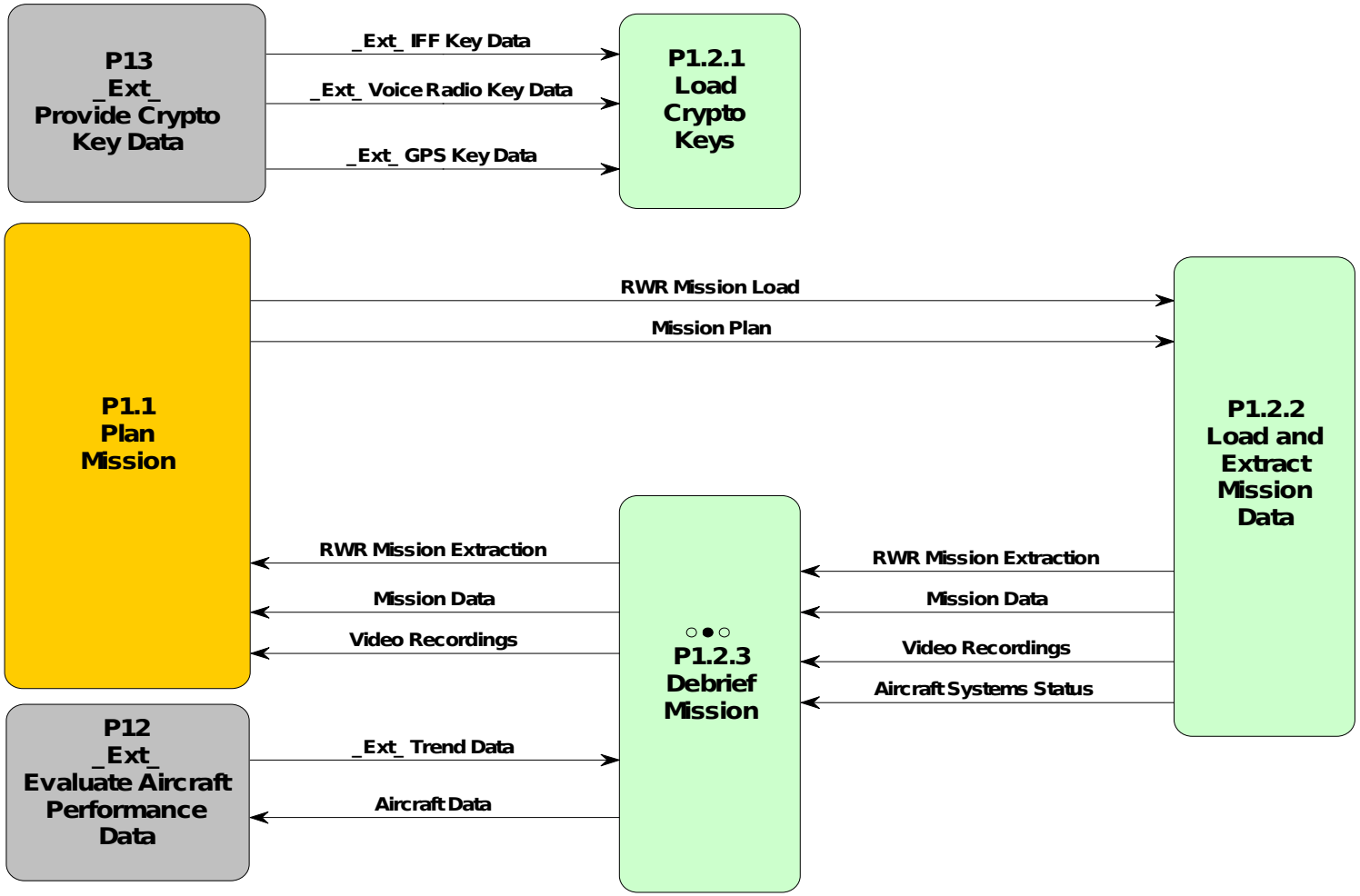
SV-4 Example



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SV-5a: Operational Activity to Systems Function Traceability Matrix
SV-5b: Operational Activity to Systems Traceability Matrix

Description: The SV-5s addresses the linkage between Systems and Systems Functions described in SV-4 Systems Functionality
Description and Operational Activities specified in OV-5a Operational Activity Decomposition Tree or OV-5b Operational
Activity Model.

ARCHITECTURE DATA ELEMENT RELATIONSHIPS:

Link SV-5s to:

OV-5. Operational activities in SV-5 match operational activities in
OV-5.

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SV-5a: Operational Activity to Systems Function Traceability Matrix
SV-5b: Operational Activity to Systems Traceability Matrix

ARCHITECTURE DATA ELEMENT RELATIONSHIPS CONTINUED:

Link SV-5s to:

OV-6c. A capability associated with a specific sequence in OV-6c
matches a capability in SV-5.

SV-1. Systems in SV-1 match systems in SV-5.

SV-4. System functions in SV-4 should map one-to-one to system
functions in SV-5.

SV-5 Example

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Allocated System	System Function Number	Functions \ Activities	Future Capability	A2.2.2 Access the Net-Centric Environment	A2.3.6 Conduct Aeromedical Evacuation	A2.3.1 Conduct Air Refueling Operations	A1.4 Conduct Aircraft Maintenance	A2.3.5 Conduct CSAR/SOF Command and Control	A2.3.2 Conduct FARP Operations	A1.3.2 Conduct Intelligence Debriefing	A1.3.3 Conduct Maintenance Debriefing	A1.3.1 Conduct Operational Debriefing	A1.2.3 Conduct Pre-flight Inspection and Preparation	A1.2.2 Crew Preparation	A2.2.1 Join Voice Networks	A1.2.1 Load Mission Plan & Configure Aircraft Systems	A2.3.4 Maintain Battlespace Awareness	A2.3.5 Perform Air Drop Delivery	A2.3.4 Perform Airland Delivery	A2.1.2 Perform En-route Navigation and Operations	A2.1.4 Perform Landing	A2.1.1 Perform Take-off	A1.1 Plan Mission	A2.1.3 Receive Strategic In-Flight Refueling
ILS/MLS	1.3.1.2	Conduct Instrument Approach	Future Capability						X												X			
PFPS, DTADS Host	1.2.3.1	Debrief Intelligence Function								X														
GCSS/CAPRE	1.2.3.3	Debrief Maintenance Function									X													
PFPS, DTADS Host, Video Recorder	1.2.3.2	Debrief Operations Function										X												
TACAN, Collision Avoidance System	1.3.1.4	Execute Strategic Refueling																						X
NAV, TACAN, GPS, ILS/MLS	1.3.2.2	Execute Tactical Take-off and Landing		X					X											X				
Encryption System	1.2.1	Load Crypto Keys													X						X			
Data Transfer and Diagnostic System (DTADS)	1.2.2	Load and Extract Mission Data														X								
RWR, NAV, TACAN, GPS, OFP	1.3.1.1	Maintain Geospatial Awareness															X				X			
TACAN, Collision Avoidance System	1.3.2.1	Perform Refuel Mission Aircraft Function			X				X															
PFPS	1.1	Plan Mission											X	X									X	
Mk XII IFF System	1.3.1.3	Provide Aircraft Identification																			X			
RWR	1.3.2.3	Receive Threat Warning															X							
IMDS, DTADS	1.2.3.4	Report Maintenance Activities				X							X											

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SV-6: Systems Resource Flow Matrix

Description: The SV-6 specifies the characteristics of Resource Flow exchanges between systems. The SV-6 is the physical equivalent of the logical OV-3 table and provides detailed information on the system connections. Non-automated Resource Flow exchanges, such as verbal orders, are also captured.

NOTE: Each system Resource Flow exchange listed in the SV-6 table should be traceable to at least one operational Resource Flow exchanged listed in the corresponding OV-3 Operational Resource Flow Matrix and these, in turn, trace to operation Resource Flows in

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SV-6: Systems Resource Flow Matrix Continued

ARCHITECTURE DATA ELEMENT RELATIONSHIPS

Link SV-6 to:

OV-3. If any part of an information element in OV-3 originates from or flows to an operational activity that is to be automated, then that information element should map to one or more system data elements in SV-6.

SV-1. Each system data element appearing in a system data exchange is graphically interfaced in SV-1; an interface supports one or more system data exchanges.

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SV-6: Systems Resource Flow Matrix Continued

ARCHITECTURE DATA ELEMENT RELATIONSHIPS CONTINUED:

Link SV-6 to:

StdV-1 (TV-1) . Technical standards in StdV-1 (TV-1) apply to,

and sometimes constrain, system data elements in SV-6.

StdV-2 (TV-2). Timed standard forecasts in StdV-2 (TV-2)) affect

system data elements in SV-6.

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SV-6 Example

Interface Identification			Data Exchange Identification
System Node Interface	OV-2 Needline	Critical Mission Thread	System Data Exchange (SDX)
20	28	Yes	_Ext_ 15-Line Briefing
20	28	Yes	_Ext_ ACO
20	28	Yes	_Ext_ ATO

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SV-6 Example Continued

Data Description					
SDX Text Description (Content)	**Format Type**	**Media Type**	**Accuracy**	**Units of Measurement**	**Data Standard**
15-Line Briefing: 1 Call sign 2 Number of survivors 3 Location (coordinates, grid, etc.) 4 Injuries/conditions 5 Equipment (comm/signal) PLS code:	ASCII Text	Fiber Optic Network	97%	Bits	IETF RFC 1870, IETF RFCs 2045-2049, IETF RFC 2822, IETF RFC
Airspace Control Order	ASCII Text	Fiber Optic Network	99%	Bits	IETF RFC 1870, IETF RFCs 2045-2049, IETF RFC 2822, IETF RFC
Air Tasking Order	ASCII Text	Fiber Optic Network	99%	Bits	IETF RFC 1870, IETF RFCs 2045-2049, IETF

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SV-6 Example Continued

Producer			Consumer		
From System Entity	From System Function	From System Node	To System Entity	To System Function	To System Node
TBMCS	_Ext_ Provide Theater Command and Control	_Ext_ C2	PFPS	Plan Mission	Mission Planning Cell
TBMCS	_Ext_ Provide Theater Command and Control	_Ext_ C2	PFPS	Plan Mission	Mission Planning Cell
TBMCS	_Ext_ Provide Theater Command and Control	_Ext_ C2	PFPS	Plan Mission	Mission Planning Cell

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SV-6 Example Continued

Nature of Transaction			Performance Attributes			
Transaction Type	**Triggering Event**	**Criticality**	**Periodicity**	**Timeliness**	**Throughput**	**Size**
Direct	Mission Briefing	02 = CAT 2 MISSION CRITICAL (MSN OPS)	"09-Event Driven"	"F: Fast (1-10 sec)"	100 Mbps	<1 MB
Direct	Mission Briefing	02 = CAT 2 MISSION CRITICAL (MSN OPS)	"04-One Day"	"M: Slow (10 sec - 10 min)"	100 Mbps	<10 MB
Direct	Mission Briefing	02 = CAT 2 MISSION CRITICAL (MSN OPS)	"04-One Day"	"M: Slow (10 sec - 10 min)"	100 Mbps	<10 MB

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SV-6 Example Continued

Information Assurance						
Access Control	**Availability**	**Confidentiality**	**Dissemination Control**	**Integrity**	**Non-Repudiation Sender**	**Non-Repudiation Receiver**
03 = CLEARANCE	02 = MED--SPECIFIC RESOURCES ALLOCATED	03 = CLEARANCE	04 = RESTRICTED--IAW ESTABLISHED POLICY	04 = MANDATORY	01 = PROOF OF ORIGIN RQD	02 = PROOF OF REC N/R
03 = CLEARANCE	02 = MED--SPECIFIC RESOURCES ALLOCATED	03 = CLEARANCE	04 = RESTRICTED--IAW ESTABLISHED POLICY	04 = MANDATORY	01 = PROOF OF ORIGIN RQD	02 = PROOF OF REC N/R
03 = CLEARANCE	02 = MED--SPECIFIC RESOURCES ALLOCATED	03 = CLEARANCE	04 = RESTRICTED--IAW ESTABLISHED POLICY	04 = MANDATORY	01 = PROOF OF ORIGIN RQD	02 = PROOF OF REC N/R

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SV-6 Example Continued

Information Security			
Protection (Type Name, Duration, Date)	**Classification**	**Classification Caveat**	**Releasability**
02 = ENCRYPT FOR TRANSMISSION ONLY (EFTO)	11 = SECRET	"12 - US ONLY"	03 = CONDITIONAL
02 = ENCRYPT FOR TRANSMISSION ONLY (EFTO)	11 = SECRET	"12 - US ONLY"	03 = CONDITIONAL
02 = ENCRYPT FOR TRANSMISSION ONLY (EFTO)	11 = SECRET	"12 - US ONLY"	03 = CONDITIONAL

Data and Information Viewpoints (DIVs)

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Viewpoints	Descriptions
DIV-2: Logical Data Model	Documentation of the data requirements and structural business process rules
DIV-3: Physical Data Model	Physical implementation of the Logical Data Model entities, e.g., message formats, file structures, physical schema

DIV-2 (OV-7): Logical Data Model

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Description: The documentation of the data requirements and structural business process (activity) rules. In DoDAF V1.5, this was the OV-7. The DIV-2 allows analysis of an architecture's data definition aspect, without consideration of implementation specific or product specific issues.

ARCHITECTURE DATA ELEMENT RELATIONSHIPS:

Link DIV-2 to:

OV-3. An information element in OV-3 should be constructed of entities in DIV-2 (OV-7).

StdV-1 (TV-1). Technical standards in StdV-1 (TV-1) apply to modeling techniques in DIV-2 (OV-7).

DIV-2 (OV-7) Generic Example

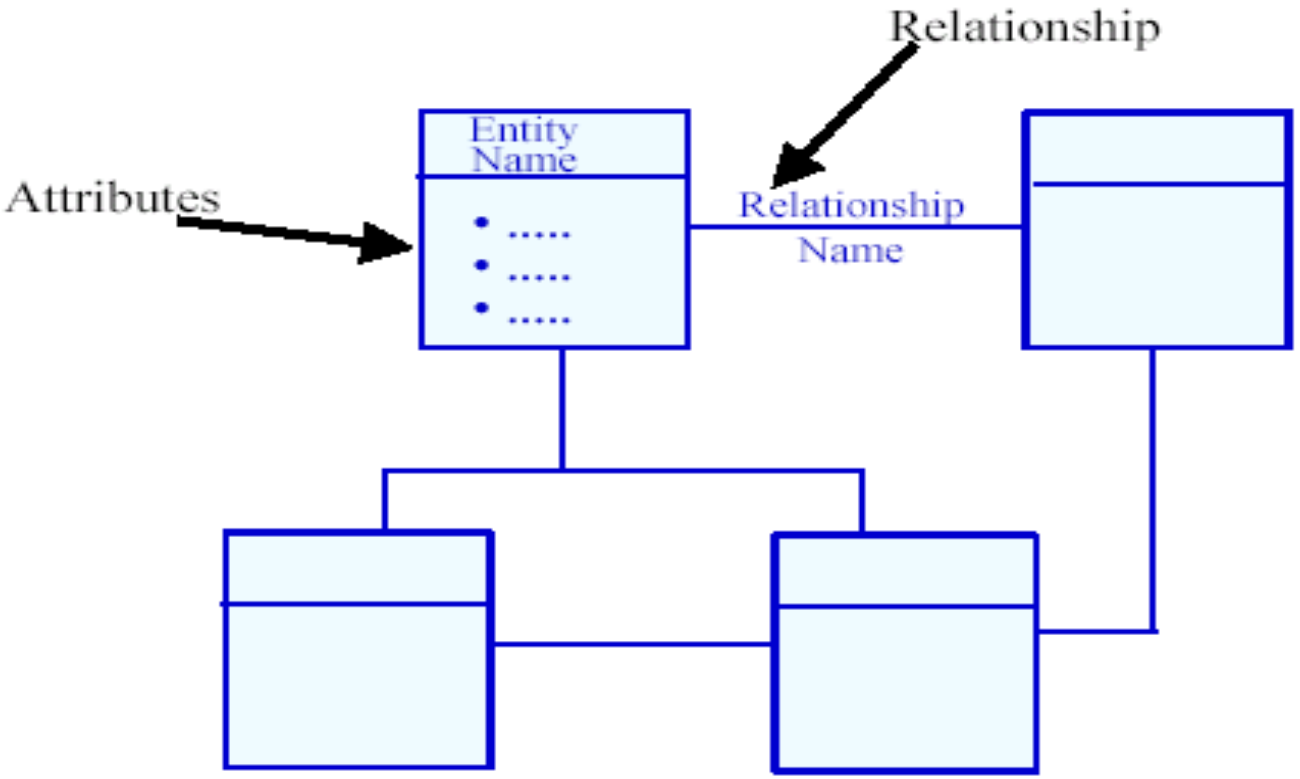

Figure 4-30. Logical Data Model (OV-7) – Template

DIV-2 (OV-7) Example

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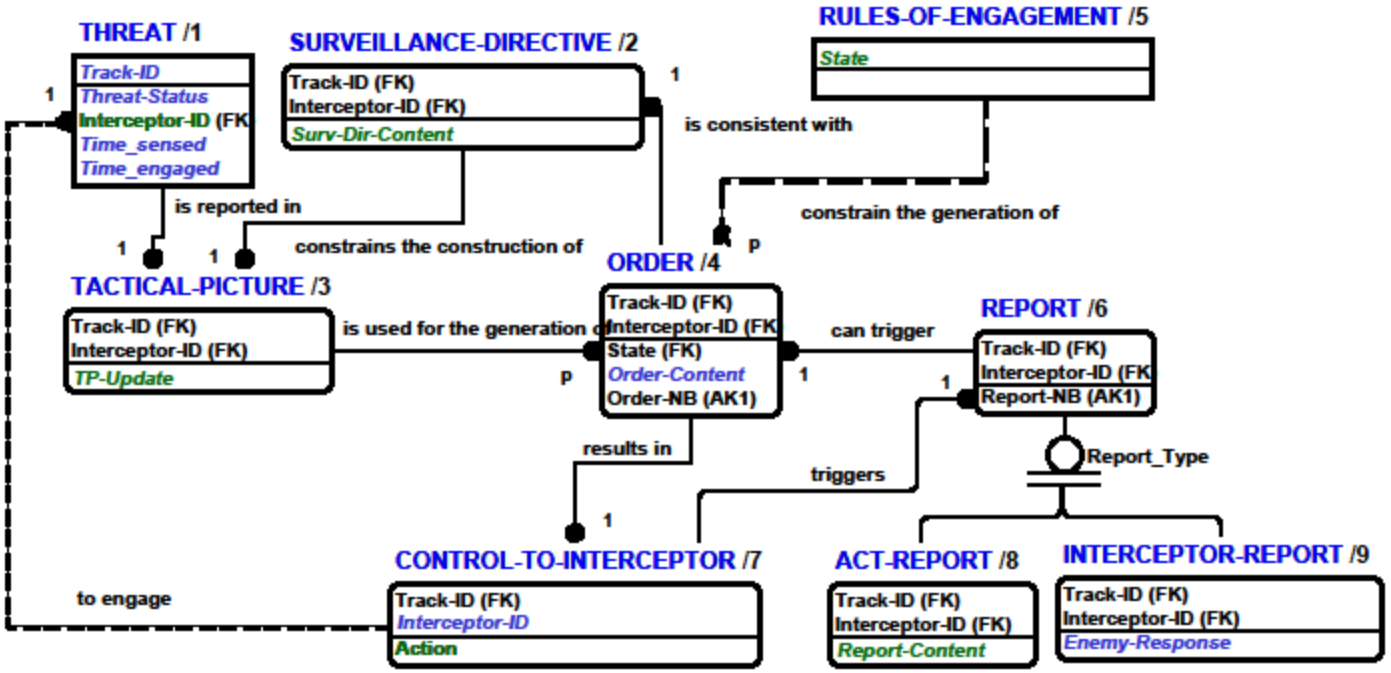

Owned Attributes in Italics

DIV-3 (SV-11): Physical Data Model

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Description: The DIV-3 defines the structure of the various kinds of system or service data that are utilized by the systems or services in the Architectural Description. The Physical Schema is one of the models closest to actual system design in DoDAF.

ARCHITECTURE DATA ELEMENT RELATIONSHIPS:

Link DIV-3 (SV-11) to:

StdV-1 (TV-1). Technical standards in StdV-1 (TV-1) apply to modeling techniques in DIV-3 (SV-11).

DIV-3 (SV-11) Generic Example

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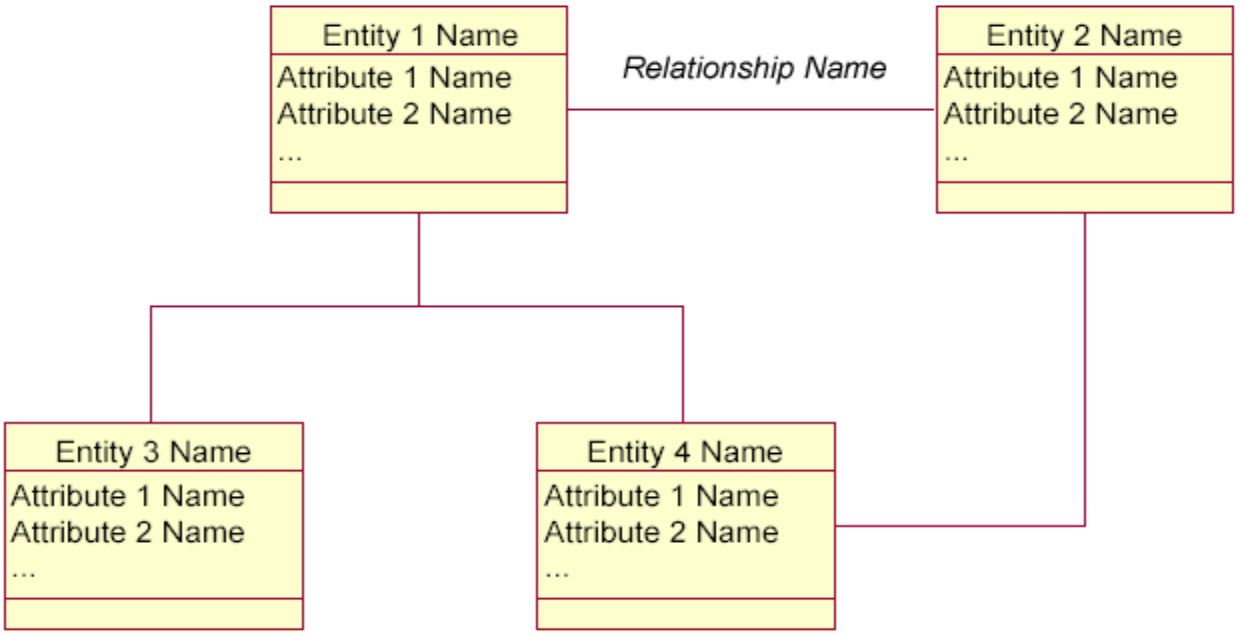

Figure 5-41. UML Class Diagram for Physical Schema (SV-11)

DIV-3 (SV-11) Example

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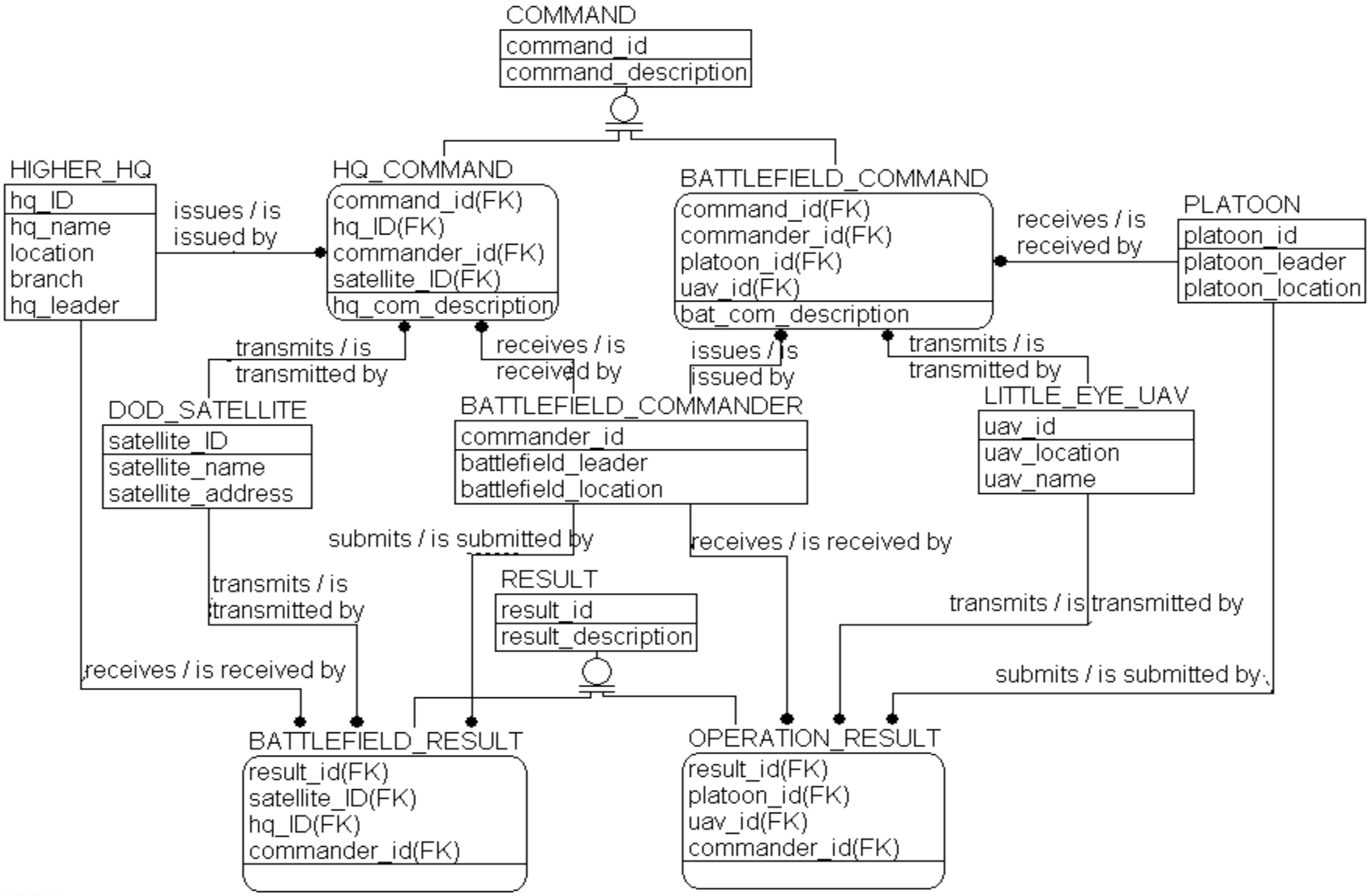

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Standards Viewpoints (StdVs)

Viewpoints	Descriptions
Standards View-1 Standards Profile (StdV-1)	Listing of standards that apply to solution elements in a given architecture
Standards View-2 Standards Forecast (StdV-2)	Description of emerging standards and potential impact on current solution elements, within a set of time frames

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StdV-1 (TV-1): Standards Profile

Description: The StdV-1 defines the technical, operational, and business standards, guidance, and policy applicable to the architecture being described. As well as identifying applicable technical standards, the DoDAF V2.0 StdV-1 also documents the policies and standards that apply to the operational or business context. The DISR is an architecture resource for technical standards that can be used in the generation of the StdV-1.

ARCHITECTURE DATA ELEMENT RELATIONSHIPS:

Link StdV-1 (TV-1) to:

DIV-2 (OV-7). Technical standards in StdV-1 (TV-1) apply to modeling techniques in DIV-2 (OV-7).

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StdV-1 (TV-1): Standards Profile Continued

ARCHITECTURE DATA ELEMENT RELATIONSHIPS CONTINUED:

Link StdV-1 (TV-1) to:

SV-2. Technical standards in StdV-1 (TV-1) apply to, and sometimes constrain, communications systems, communications links, and communications networks in SV-2.

SV-4. Technical standards from StdV-1 (TV-1) apply to system functions in SV-4.

SV-6. Technical standards in StdV-1 (TV-1) apply to, and sometimes constrain, system data elements in SV-6.

DIV-2 (SV-11). Technical standards in StdV-1 (TV-1) apply

StdV-1 (TV-1) Example

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Unclassified

Technical Standards View (TV-1)

Standards Profile for TACTICAL UNMANNED AERIAL VEHICLE

DISR System Profile:	TACTICAL UNMANNED AERIAL VEHICLE
System Description:	The Shadow-200 RQ-7, Tactical Unmanned Aerial Vehicle (TUAV) is used to support the brigade with organic intelligence, surveillance, reconnaissance, and target acquisition at distances of up to 125 km.
System Classification:	Unclassified
Created by:	Brian Decker
Published Date:	2009-05-15
CDD or ISP Stage 1:	no

System Profile has attached Waiver Granting Authority Information.

Waiver Authority Name:	STEVEN W BOUTELLE
Waiver Authority Title:	Chief Information Officer G-6
Waiver Authority Rank:	Lieutenant General
Waiver Authority Phone No:	703-602-6884
Waiver Date:	2006-10-26 0000

Technical Standards View (TV-1) - The Technical Standards Profile collects the various systems standards rules that implement and sometimes constrain the choices that can be made in the design and implementation of an architecture.

IT Profile:	Communications (Tactical)
IT Description:	TUAV will use multiple voice and tactical data link systems including VHF, UHF, and FM for voice.
IT Profile Classification:	Unclassified
Last Updated:	2009-05-15

Service Area	Standard Identifier	Title of Standard	Published Status	Sunset	Current Status	Sunset
Radio Communications	MIL-STD-188-243	Tactical Single Channel (UHF) Radio Communications, 15 March 1989	Mandated	X	Mandated	X
Radio Communications	STANAG 4246	HAVE QUICK UHF Secure and Jam-Resistant Communications Equipment, Edition 2, 17 June 1987; with Amendment 3, August 1991	Mandated	X	Mandated	X

IT Profile:	IFF
IT Description:	Mode IIIC, IV, V, and S are threshold requirements for the TUAV system.
IT Profile Classification:	Unclassified
Last Updated:	2009-05-15

StdV-2 (TV-2): Physical Data Model

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Description: The StdV-2 contains expected changes in technology related standards, operational standards, or business standards and conventions, which are documented in the StdV-1 model. StdV-2 lists emerging or evolving standards relevant to the solutions covered by the Architectural Description.

ARCHITECTURE DATA ELEMENT RELATIONSHIPS:

Link StdV-2 (TV-2) to:

SV-1. Timed standard forecasts in StdV-2 (TV-2) affect systems, subsystems and system hardware/software items in SV-1.

SV-2. Timed standard forecasts in StdV-2 (TV-2) affect

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StdV-2 (TV-2): Physical Data Model Continued

ARCHITECTURE DATA ELEMENT RELATIONSHIPS CONTINUED:

Link StdV-2 (TV-2) to:

SV-4. Timed standard forecasts in StdV-2 (TV-2) affect system functions in SV-4.

SV-6. Timed standard forecasts in StdV-2 (TV-2) affect system data elements in SV-6.

StdV-2 (TV-2) Example

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Unclassified

Technical Standards Forecast (TV-2)

Standards Profile for APACHE LONGBOW, AH-64 BLK 3

Technical Standards Forecast (TV-2) - The Techincal Standards Forecast contains expected changes in technology-related standars and conventions, which are tocumented in the TV-1 product. The forecast for evolutionary changes in the standards should be correlated against the time periods as mentioned in the SV-8 and SV-9 products.

IT Profile:	AH-64D Apache Block III-p3 - TV-2 IT Profile
IT Description:	TV-2 IT Profile
IT Profile Classification:	Unclassified
Last Updated:	2009-05-19

Service Area	Standard Identifier	Title of Standard	Published Status	Sunset	Current Status	Sunset
Military Messaging	IBS TIDP	Integrated Broadcast Service (IBS) Technical Interface Design Plan - Test Edition (TIDP-TE)	Emerging		Emerging	
IPv6 Capable Product Class Profiles	IETF RFC 2207	RSVP Extensions for IPSEC Data Flows, September 1997	Emerging		Emerging	
IPv6 Capable Product Class Profiles	IETF RFC 2210	The Use of RSVP with IETF Integrated Services, September 1997	Emerging		Emerging	
Network Technologies	IETF RFC 2794	Mobile IP Network Access Identification Extension for IPv4, March 2000	Emerging		Emerging	
Transport-Oriented (quality of service)	IETF RFC 3031	Multi-protocol Label Switching Architecture, January 2001	Emerging		Emerging	
IPv6 Capable Product Class Profiles	IETF RFC 3175	Aggregation of RSVP for IPv4 and IPv6 Reservations, September 2001	Emerging		Emerging	
Network Technologies	IETF RFC 3241	Robust Header Compression (ROHC) over PPP, April 2002	Emerging		Emerging	
Satellite Communications	MIL-STD-188-184A	Interoperability and Performance Standard for the Data Control Waveform	Emerging		Emerging	
GEOINT: Motion Imagery	MISB RP 0701.0 Common Metadata System:Structure	MISB Recommended Practice 0701.0, Common Metadata System: Structure, 6 August 2007	Emerging		Emerging	
Document Interchange	XML 1.1:2004	Extensible Markup Language (XML) 1.1, W3C Recommendation 04 February 2004, edited in place 15 April 2004	Emerging		Emerging	

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Service Viewpoints (SvcVs)

Viewpoints	Descriptions
SvcV-1 Services Interface Description	Identification of services and service items and their interconnections
SvcV-2 Services Communications Description	Services and service items and their Related communications laydowns
SvcV-4 Services Functionality Description	Functions performed by services and the service data flows among service functions
SvcV-5 Operational Activity to Services Traceability Matrix	Mapping of services back to operational activities
SvcV-6 Services Data Exchange Matrix	Provides details of system or service data elements being exchanged between services and the attributes of that

SvcV-1: Services Interface Description

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Description: The SvcV-1 addresses the composition and interaction of Services. It is important to recognize that the SvcV-1 focuses on the Resource Flow and the providing service.

NOTE: A Service Resource Flow is a simplified representation of a pathway or network pattern, usually depicted graphically as a connector (i.e., a line with possible amplifying information).

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SvcV-1: Services Interface Description Continued

ARCHITECTURE DATA ELEMENT RELATIONSHIPS CONTINUED:

Link SvcV-1 to:

OV-2. Operational resources in OV-2 may be supported by one or more services in SvcV-1 (indicating that the operational resource owns/uses the service). A needline in OV-2 may map to one or more services in an SvcV-1, and an service in SV-1 maps to one or more needlines in OV-2.

SvcV-2. A service in SvcV-1 is implemented by Services, their ports, and the Resource Flows between those ports

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SvcV-1: Services Interface Description Continued

ARCHITECTURE DATA ELEMENT RELATIONSHIPS CONTINUED:

Link SvcV-1 to:

SvcV-5 Services in SvcV-1 match services in SvcV-5.

SvcV-6 Each service data element appearing in a service data exchange is graphically depicted by one of the services in SvcV-1; a service supports one or more service data exchanges

StdV-1 (TV-1). Technical standards in StdV-1 (TV-1) apply to and sometimes constrain services, subservices, and service hardware/software items in SvcV-1.

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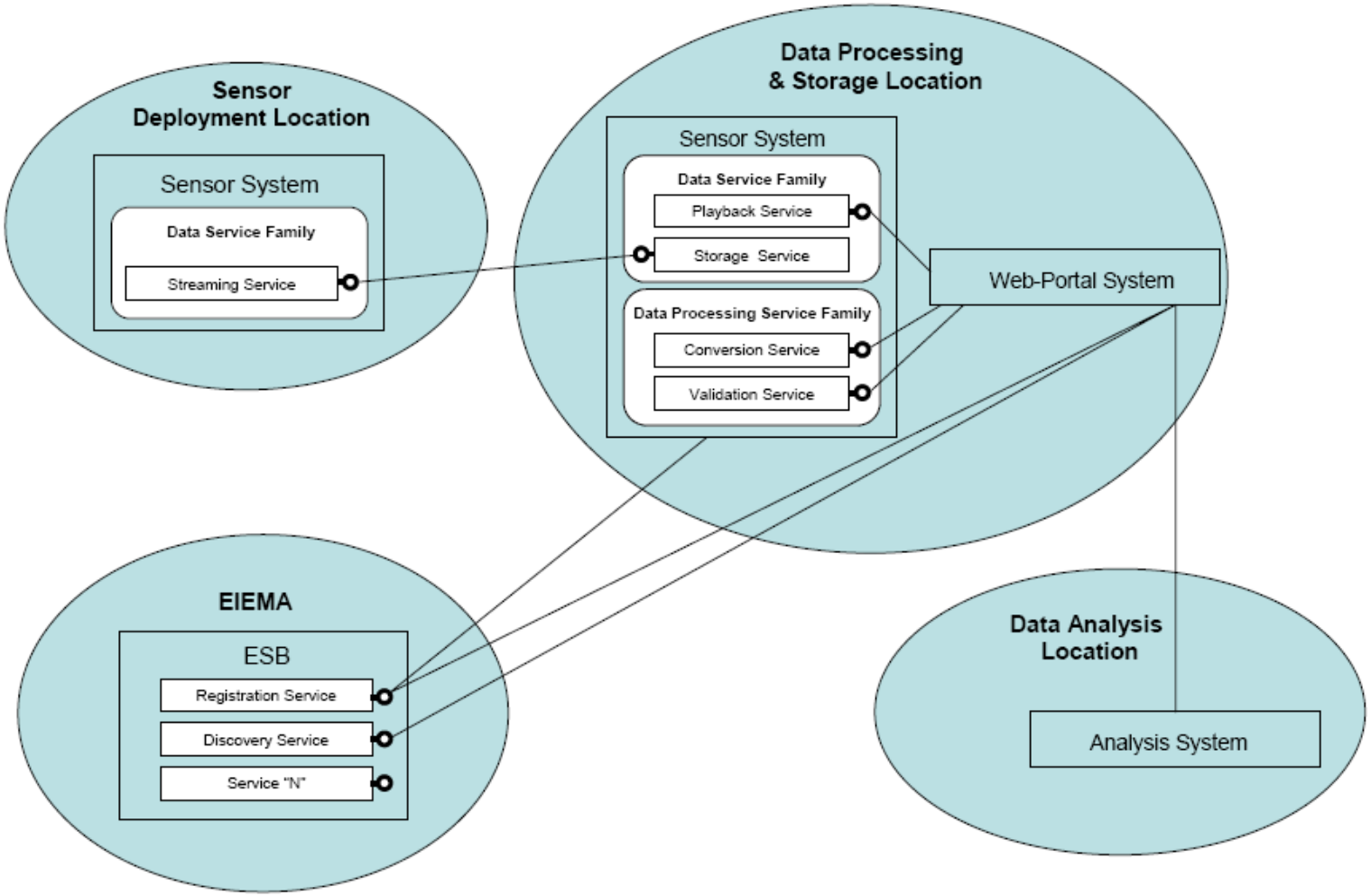
SvcV-1 Example



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SvcV-2: Services Resource Flow Description

Description: A SvcV-2 specifies the Resource Flows between
services for a network data service, a SvcV-2 comprises services,
their ports, and the Service Resource Flows between those ports.

ARCHITECTURE DATA ELEMENT RELATIONSHIPS:

Link SvcV-2 to:

SvcV-1. An service in SvcV-1 is implemented by Services, their
ports, and the Resource Flows between those ports
(communications link(s) or communications network(s)) in

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SvcV-2: Services Resource Flow Description Continued

ARCHITECTURE DATA ELEMENT RELATIONSHIPS CONTINUED:

Link SvcV-2 to:

StdV-1 (TV-1). Technical standards in StdV-1 (TV-1) apply to and sometimes constrain communications services, communications links, and communications networks in SvcV-2.

StdV-2 (TV-2). Timed standard forecasts in StdV-1 (TV-2) impact communications services, communications links, and communications networks in SvcV-2.

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SvcV-2 Example

No viewpoint example yet available. Similar to SV-2 but focus is on services

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SvcV-4: Services Functionality Description

Description: The primary purpose of SvcV-4 is to develop a clear description of the necessary data flows that are input consumed) by and output (produced) by each resource, ensure that the service functional connectivity is complete (i.e., that a resource's required inputs are all satisfied), and to ensure that the functional decomposition reaches an appropriate level of detail. The SvcV-4 is the Services Viewpoint counterpart to the OV-5b Operational Activity Model of the Operational Viewpoint.

ARCHITECTURE DATA ELEMENT RELATIONSHIPS:

Link SvcV-4 to:

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SvcV-4: Services Functionality Description Continued

ARCHITECTURE DATA ELEMENT RELATIONSHIPS CONTINUED:

Link SvcV-4 to:

SvcV-5. Service functions in SvcV-4 should map one-to-one to service functions in SvcV-5.

SvcV-6. Service resource flows (data flows) in SvcV-4 should map to service resource flows (data elements) appearing in service resource (data) exchanges of SvcV-6.

StdV-1 (TV-1). Technical standards from StdV-1 (TV-1) apply to service functions in SvcV-4.

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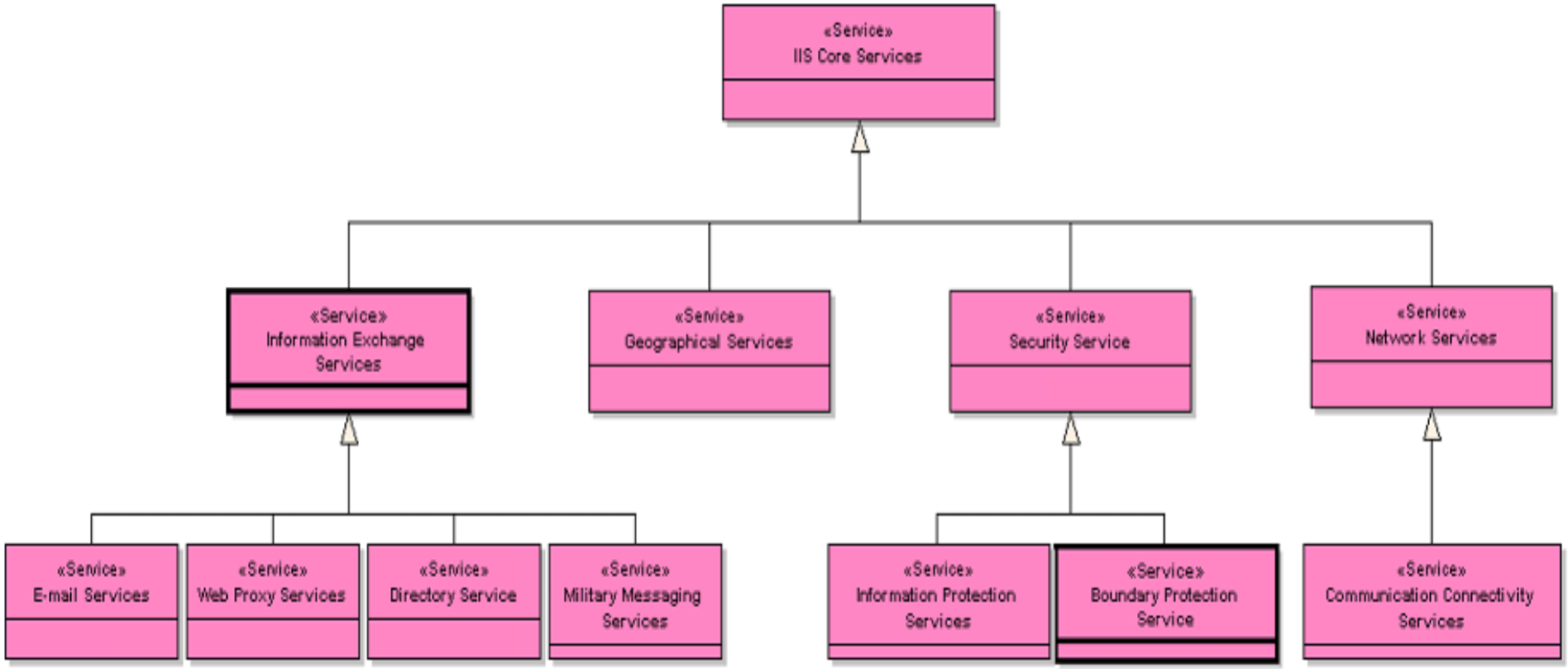
SvcV-4 Example



Shows Services' Specialization Hierarchy

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SvcV-5: Operational Activity to Services Traceability Matrix

Description: The SvcV-5 addresses the linkage between service functions described in SvcV-4 and Operational Activities specified in OV-5a Operational Activity Decomposition Tree or OV-5b Operational Activity Model.

ARCHITECTURE DATA ELEMENT RELATIONSHIPS:

Link SvcV-5s to:

OV-5. Operational activities in SvcV-5 match operational activities in OV-5s.

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SvcV-5: Operational Activity to Services Traceability Matrix Continued

ARCHITECTURE DATA ELEMENT RELATIONSHIPS:

Link SvcV-5s to:

OV-6c. A capability associated with a specific sequence in OV-6c matches a capability in SvcV-5.

SvcV-1. Services in SvcV-1 match services in SvcV-5.

SvcV-4. Services functions in SvcV-4 should map one-to-one to services functions in SvcV-5.

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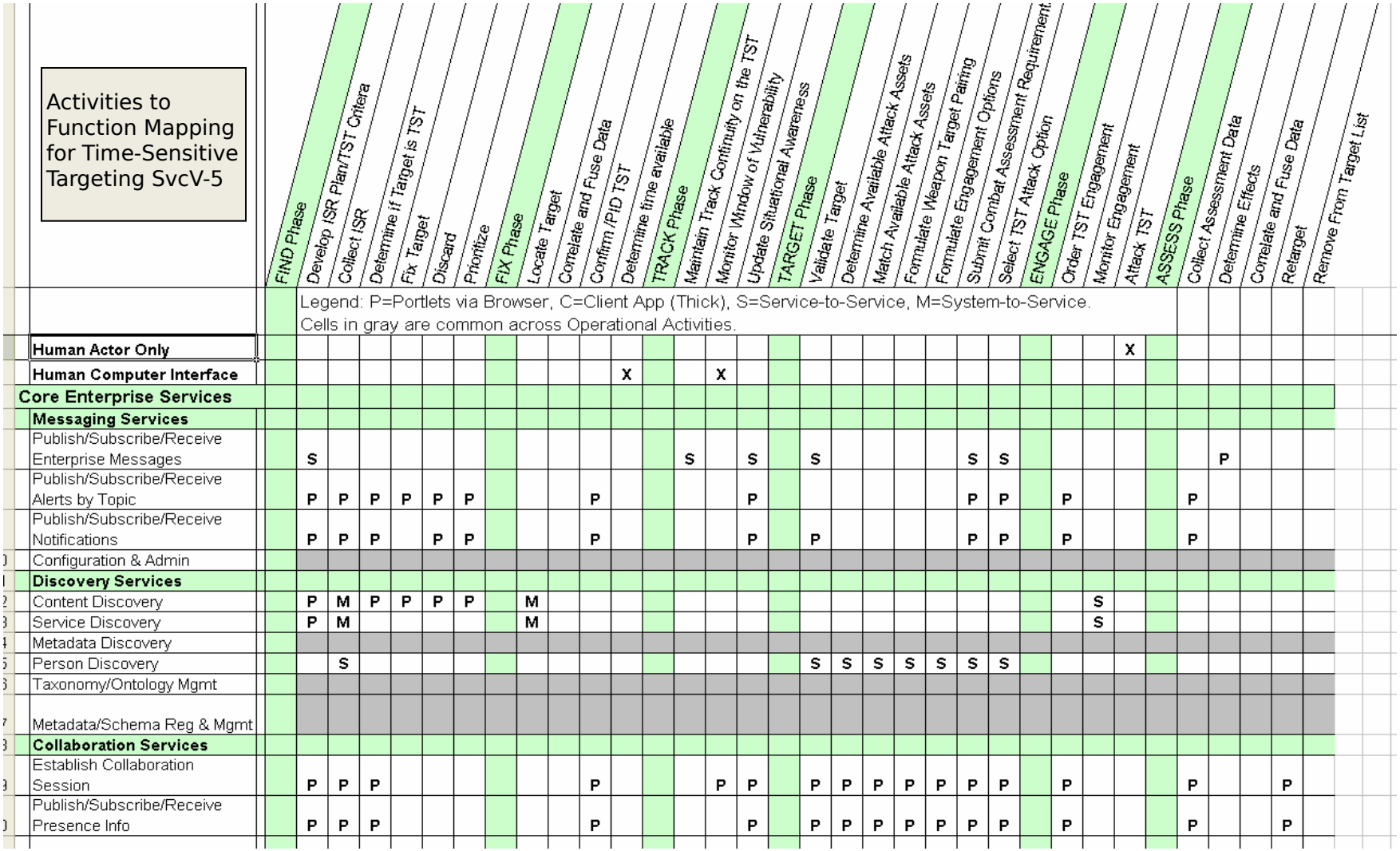
SvcV-5 Example



Activities to Function Mapping for Time-Sensitive Targeting SvcV-5

Legend: P=Portlets via Browser, C=Client App (Thick), S=Service-to-Service, M=System-to-Service.
Cells in gray are common across Operational Activities.

	FIND Phase	Develop ISR Plan/TST Criteria	Collect ISR	Determine if Target is TST	Fix Target	Discard	Prioritize	FIX Phase	Locate Target	Correlate and Fuse Data	Confirm PID TST	Determine time available	TRACK Phase	Maintain Track Continuity on the TST	Monitor Window of Vulnerability	Update Situational Awareness	TARGET Phase	Validate Target	Determine Available Attack Assets	Match Available Attack Assets	Formulate Weapon Target Pairing	Formulate Engagement Options	Submit Combat Assessment Requirement	Select TST Attack Option	ENGAGE Phase	Order TST Engagement	Monitor Engagement	Attack TST	ASSESS Phase	Collect Assessment Data	Determine Effects	Correlate and Fuse Data	Retarget	Remove From Target List
Human Actor Only																											X							
Human Computer Interface												X			X																			
Core Enterprise Services																																		
Messaging Services																																		
Publish/Subscribe/Receive Enterprise Messages		S												S		S		S						S	S					P			
Publish/Subscribe/Receive Alerts by Topic		P	P	P	P	P	P				P					P								P	P		P		P				
Publish/Subscribe/Receive Notifications		P	P	P		P	P				P					P		P						P	P		P		P				
Configuration & Admin																																		
Discovery Services																																		
Content Discovery		P	M	P	P	P	P		M																	S								
Service Discovery		P	M						M																	S								
Metadata Discovery																																		
Person Discovery			S															S	S	S	S	S	S	S										
Taxonomy/Ontology Mgmt																																		
Metadata/Schema Reg & Mgmt																																		
Collaboration Services																																		
Establish Collaboration Session		P	P	P							P				P	P		P	P	P	P	P	P	P		P			P			P		
Publish/Subscribe/Receive Presence Info		P	P	P							P					P		P	P	P	P	P	P	P		P			P			P		

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SvcV-6: Services Resource Flow Matrix

Description: The SvcV-6 specifies the characteristics of the Service Resource Flows exchanged between Services, usually in a tabular format. The **focus** of SvcV-6 is on how the Service Resource Flow exchange is affected, in service specific details covering **periodicity, timeliness, throughput, size, information assurance, and security characteristics** of the resource exchange. In addition, for Service Resource Flow of **data, their format and media type, accuracy, units of measurement, applicable system data standards, and any DIV-3 Physical Data Models are also described or referenced in the matrix**

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SvcV-6: Services Resource Flow Matrix Continued

ARCHITECTURE DATA ELEMENT RELATIONSHIPS CONTINUED:

Link SvcV-6 to:

OV-3. If any part of a resource (information element) in OV-3 originates from or flows to an operational resource that is to be automated, then that resource (information element) should map to one or more service resources (data elements) in SvcV-6.

SvcV-1. Each service resource (data element) appearing in a service resource (data exchange) is graphically interfaced in SvcV-1; an interface supports one or more service resource (data exchanges).

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SvcV-6: Services Resource Flow Matrix Continued

ARCHITECTURE DATA ELEMENT RELATIONSHIPS CONTINUED:

Link SvcV-6 to:

StdV-1 (TV-1) . Technical standards in StdV-1 (TV-1) apply to,
and sometimes constrain, service resource (data elements) in
SvcV-6.

StdV-2 (TV-2). Timed standard forecasts in StdV-2 (TV-2)) affect
service resource (data elements) in SvcV-6.

SvcV-6 Example

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Not identical to V 1.5 columns

Identifier/Name of Operational Needline Supported (from OV-2)	Identifier/Name of Corresponding System Interface(s) (from SV-1)	Identifier/ Name of Operational Information Exchange Supported (from OV-3)	Identifier/ System Data Exchange	Nature of Transaction					Data Source		Data Destination	
				Content	Size	Format	Other Protocols	Data Standard	Source System Name	Source System Function	Receiving System Name	Receiving System Function
Needline1	e.g., Interface 1	e.g., 1-a	e.g., 1-a (1)									
			e.g., 1-a (n)									
		e.g., 1-b										
	e.g., Interface 2	e.g., 1-c										
	.	e.g., 1-d										
	e.g., Interface n											
Needline2												
Needlinen												

Documents data/resource exchanges among systems and how information exchanges are implemented. For services, the focus is the resource flows produced and consumed by each services. Column headings are no longer specified.

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SvcV-6 Example Continued

Performance Attributes				nformation Assurance Attributes				Threats			Physical Environment		
Frequency	Timeliness	Throughput	Other	Classification	Criticality/ Priority	Encryption	Authentication	Physical	Electronic	Political/ Economic	Aerospace	Land	Sea

DoDAF V2.0 Summary

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- The continuous evolution of DODAF is compelling and necessary
- The success of DOD architecting is dependent on simplifying and streamlining the DODAF
- Aligning architecture with key transformation issues such as portfolio management, JCIDS, and resource management is critical
- Shifting OSD architecture policy away from products and toward data is important

DoDAF V2.0 Summary Continued

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- DoDAF V2.0 provides an overarching set of architecture concepts, guidance, best practices, and methods to enable and facilitate architecture development
- It is all about the decision-makers and the data!
- Fit-for-Purpose describes an architecture that is appropriately focused and directly support customer needs or improve the overall process undergoing change
- The models provide choices, based upon the decision-maker needs
- Adoption of DoDAF V2.0 benefits the decision-maker and the architect with the freedom of

Frequently Asked Questions

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The most commonly asked:

1. Do all models/views need to be created?

2. What is the minimum set of models/views that need to be created?

3. Am I required to use specific tools for developing architectural descriptions?

4. What about methodologies? Is there a required methodology?

5. Where do I go for more information?

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DoDAF Website Overview

- **Public DoDAF Website**
  - **Open to public**
  - **Hosted on the DoD CIO/NII website**
  - **http://cio-nii.defense.gov/sites/dodaf20/**

- **Private DoDAF Website**
  - **Need Government Sponsor**
  - **Need Account**
  - **Change Request Submission**
  - **Hosted on DKO Homepage**
  - **https://www.us.army.mil/suite/page/454707**

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DoDAF V2.0, Vol 1-3 is also available at JITC INTRANET:
http://jitc.fhu.disa.mil/jitc_dri/jitc.html

Questions?

Engineering and Policy Branch
June 2010

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Back-up Slides

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Terms Updated

DoDAF V1.5	DoDAF V2.0
Architecture	Architectural Description
Architecture data	Architectural data
Product	DoDAF-described Model
Product	Fit-for-Purpose View*
View	Viewpoint

*User defined

DoDAF V2.0 Promulgation Memo

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- Version 2.0 is the prescribed framework for all Department architectures and represents a substantial shift in approach
  - Don’t redo current architecture
- Architectures shall comply with Version 2.0 in their next major release
  - Update only in the next release

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DoDAF V2.0 Conformance

- The data in an architectural description is defined according to the DoDAF Meta-model (DM2) concepts, associations, and attributes.
  - The information captured in an architecture tool is consistent with the DM2 concepts, association, and attributes.
  - Architectural data should be stored in a recognized commercial architecture tool that conforms to industry standards. Powerpoint, Visio, Excel, etc. can be used for the PRESENTATION of architectural data, but it must be based on DATA.
- The architecture data is capable of transfer in accordance with the Physical Exchange Specification (PES)
  - Architectures that will exchange information need to comply with DM2 PES (for the appropriate architectural data)

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Data-Centric Paradigm

- Prior versions of DoDAF emphasized ‘products’ (i.e., graphical representations or documents).

- DoDAF V2.0 emphasizes the capture and analysis of data and its relationships, rather than the creation of products.

  - Emphasizes on utilizing architectural data to support analysis and decision-making.
  - Greatly expands the types of graphical representations that can be used to support decision-making activities.
  - Supports innovative and flexible presentation of the architectural data in a meaningful, useful, and understandable manner.

CJSCI 6212.01E and DODAF 2.0 Currently is Note 5

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Document	Supportability Compliance	DOD Enterprise Architecture Products (IAW DODAF) (see Note 5)															Data/Service Exposure Sheets	IA Compliance	GTG Compliance
		AV-1 /AV-2	OV-1	OV-2	OV-3	OV-4	OV-5	OV-6C	OV-7	SV-1	SV-2	SV-4	SV-5	SV-6	SV-11	TV-1	TV-2			
ICD			X																	
CDD	X	3	X	X	X	X	X	X			X	X	X	X		2	2	1	X	X
CPD	X	3	X	X	X	X	X	X	1		X	X	X	X	1	2	2	1	X	X
ISP	X	3	X	X	X	X	X	X	4		X	X	X	X	4	2	2	1	X	X
TISP	X	3	X		X		X	X		X			X	X		2	2	1	X	X
ISP Annex (Svcs/ Apps)	X	3	X				X				X	X	X	X		2	2	1	X	X
X		Required (PM needs to check with their Component for any additional architectural/regulatory requirements for CDDs, CPDs, ISPs/TISPs. (e.g., HQDA requires the SV-10c)																		
Note 1		Required only when IT and NSS collects, processes, or uses any shared data or when IT and NSS exposes, consumes or implements shared services,																		
Note 2		The TV-1 and TV-2 are built using the DISRonline and must be posted for compliance.																		
Note 3		The AV-1 must be uploaded onto DARS and must be registered in DARS for compliance																		
Note 4		Only required for Milestone C, if applicable (see Note 1)																		
Note 5		The naming of the architecture views is expected to change with the release of DODAF v2.0 (e.g., StdV, SvcV, StdV, DIV). The requirements of this matrix will not change.																		

DoDAF Conformance

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- DoD Components are expected to conform to DoDAF to the maximum extent possible in development of architectures within the Department

- Conformance ensures that reuse of information, architecture artifacts, models, and viewpoints can be shared with common understanding

- Conformance is expected in both the classified and unclassified communities

NOTE: DoDAF does not prescribe any particular Views, but instead concentrates on data as the necessary ingredient for architecture development. However, other regulations and

These Basic Products Link to Each Other

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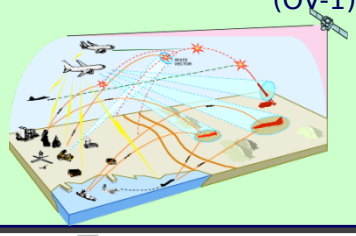
HIGH-LEVEL OPERATIONALCONCEPT DESCRIPTION (OV-1)



VALUE ADDED: SUMMARY LEVEL REPRESENTATION OF ORGANIZATIONS/ROLES, MISSION, AND CONTEXT FOR THE ARCHITECTURE

STANDARDS PROFILE (StdV-1)

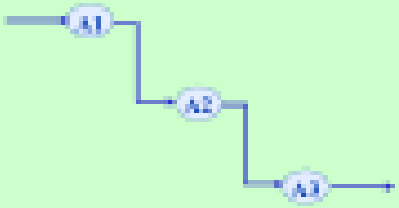
SERVICE AREA	SERVICE	STANDARD
Support Applications	Web Applications	Internet Explorer Version 4.X or better Netscape Version 3.X or better
Data Management	Business Data Standards	Data Universal Numbering System (DUNS) ZIP Code Directory Congressional District Identifier ISO 3166: ISO 3166-1 (1October 1997) and ISO 3166-2 (15 December 1998) (Codes for the Representation of Names of Countries and Their Subdivisions) U.S. State Codes and Territory Codes Catalogue for Federal Domestic Assistance Program Electronic Grants Data Elements
Data Interchange	Document Interchange	XML 1.0, W3C Recommendation, 10 February 1998, Rec-xml-19980210 (Extensible Markup Language) HTML 4.0 Specification, W3C Recommendation revised 24-apr-1998, Rec-html40-19980424 (Hypertext Markup Language) ANSI ASC X12 (Electronic Data Interchange)
Communications	World Wide Web Services Electronic Mail	IETF RFC-2616 Hypertext Transfer Protocol – HTTP/1.1; June 1999 IETF Standard 10/RFC-821/RFC-1869/RFC-1870 Simple Mail Transfer Protocol (SMTP) Service Extensions, November 1995 IETF Standard 11/RFC-822/RFC-1049 Standard for the Format of ARPA Internet Text Messages, 13 August 1982 IETF RFCs 2045-2049 Multipurpose Internet Mail Extensions (MIME), November 1996

VALUE ADDED: COMPLETE LIST OF RELEVANT STANDARDS WITH OPTIONS & PARAMETERS

OPERATIONAL CONCEPT ROLES & MISSIONS SET SCOPE FOR ACTIVITY MODEL

STANDARDS APPLY AT SYSTEM TO SYSTEM INTERFACES

OPERATIONAL ACTIVITY MODEL (OV-5)



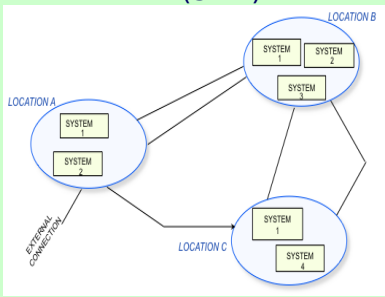
- ACTIVITIES MAP TO OV-2 PERFORMERS
- I/OS MAP TO NEEDLINES
- PERFORMERS OF ACTIVITIES, IF SHOWN ON 0V-5, MAP TO OV-2 PERFORMERS

VALUE ADDED: BUSINESS/MISSION PROCESS & RELATIONSHIPS AMONG ACTIVITIES AND RESOURCE EXCHANGES

OPERATIONAL CONCEPT CONNECTIVITY & RESOURCE EXCHANGES, IF SHOWN ON 0V-1,

MAP TO OV-2 NEEDLINES & RESOURCE EXCHANGES

SYSTEMS INTERFACE DESCRIPTION (SV-1)

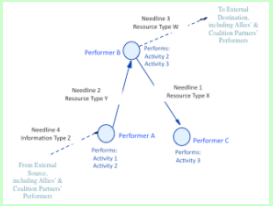


VALUE ADDED: STATEMENT OF LOCATIONS, SYSTEMS & INTERFACES

INPUT/OUTPUT LABELS MAP TO OPERATIONAL RESOURCE EXCHANGES (NOT ALWAYS ONE-TO-ONE)

RESOURCE EXCHANGES ASSOCIATED WITH EACH NEEDLINE ARE DETAILED IN OV-3

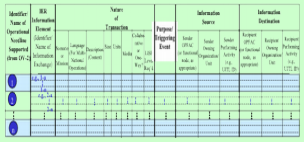
OPERATIONAL RESSOURCE FLOW DESCRIPTION (OV-2)



VALUE ADDED: STATEMENT OF OPERATIONAL PERFORMERS, ACTIVITIES, AND CRITICAL RESOURCE EXCHANGE NEEDS

- PERFORMERS ARE ASSOCIATEAD WITH SYSTEMS AND LOCATIONS
- EACH OPERATIONAL NEEDLINE MAPS TO ONE OR MORE SYSTEM INTERFACES

OPERATIONAL RESOURCE FLOW MATRIX (OV-3)



VALUE ADDED: INDIVIDUAL RESOURCE EXCHANGES ASSOCIATED WITH EACH NEEDLINE & PERFORMANCE REQUIREMENTS

Project Viewpoints (PVs)

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Viewpoints	Descriptions
PV-1: Project Portfolio Relationships	Organizational structures needed to manage a portfolio of projects and shows dependency relationships between the organizations and projects.
PV-2: Project Timelines	A timeline perspective on programs or projects, with the key milestones and interdependencies
PV-3: Project to Capability Mapping	Mapping of programs and projects to capabilities to show how the specific projects and program elements help to achieve a capability

Capability Viewpoints (CVs)

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Viewpoints	Description
CV-1: Vision	Overall vision for transformational endeavors, provides a strategic context for the capabilities described, and provides a high-level scope.
CV-2: Capability Taxonomy	A hierarchy of capabilities, specifies all the capabilities that are referenced throughout one or more architectures.
CV-3: Capability Phasing	Planned achievement of capability at different points in time or during specific periods of time.
CV-4: Capability Dependencies	Dependencies between planned capabilities and defines logical groupings of capabilities.
CV-5: Capability to Organizational	The fulfillment of capability requirements, shows the planned capability deployment and

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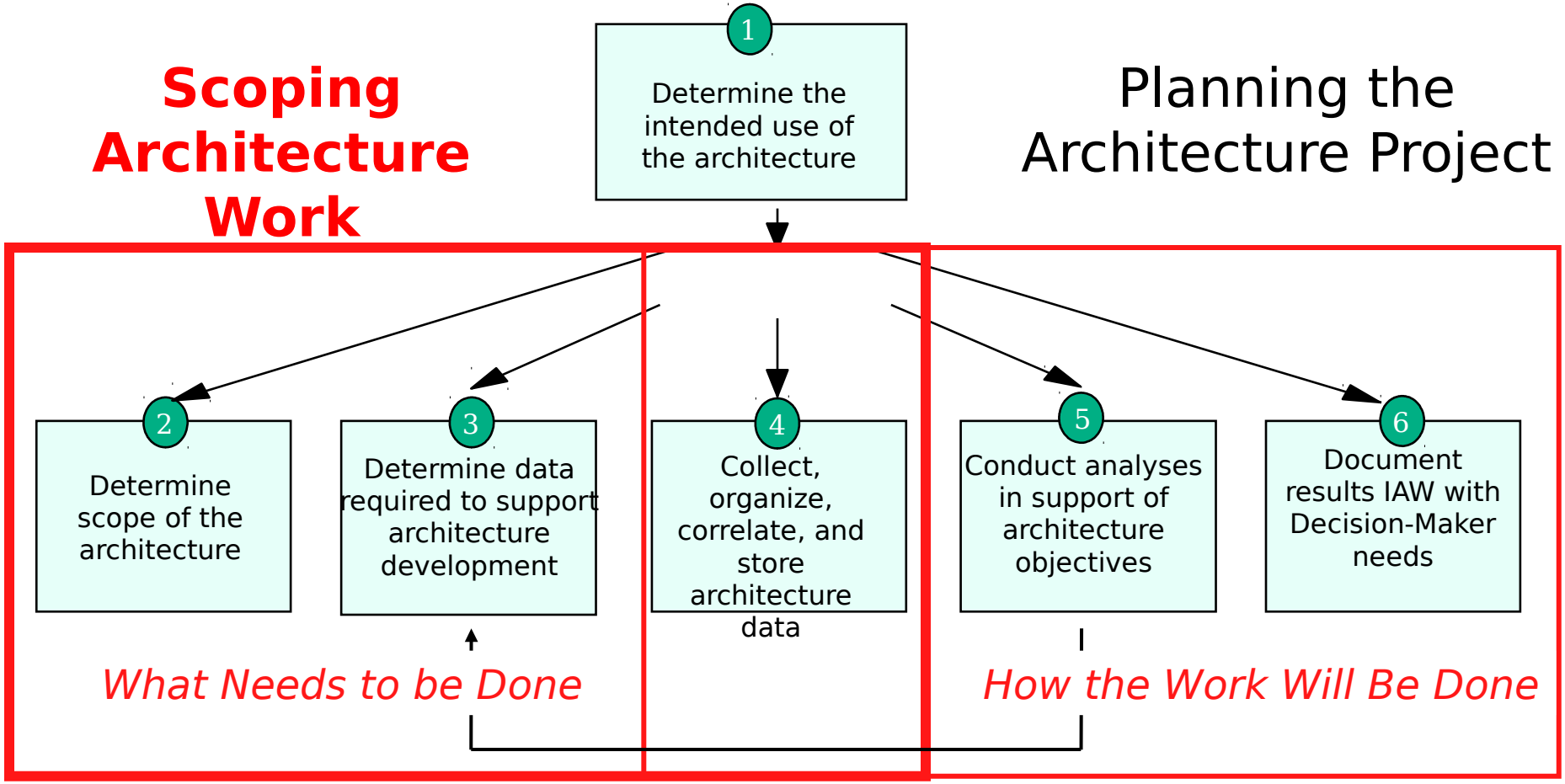
Six Step Process (V2.0) - The Planning Perspective



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Node in DoDAF 1.5

- Before DoDAF 2.0, Node was used inconsistently.
- There was confusion around what Node represented and how it should be interpreted.
  - Organization
  - Functional Grouping
  - Location
  - Facility
  - Program, etc.

Node Concept in DoDAF V2.0

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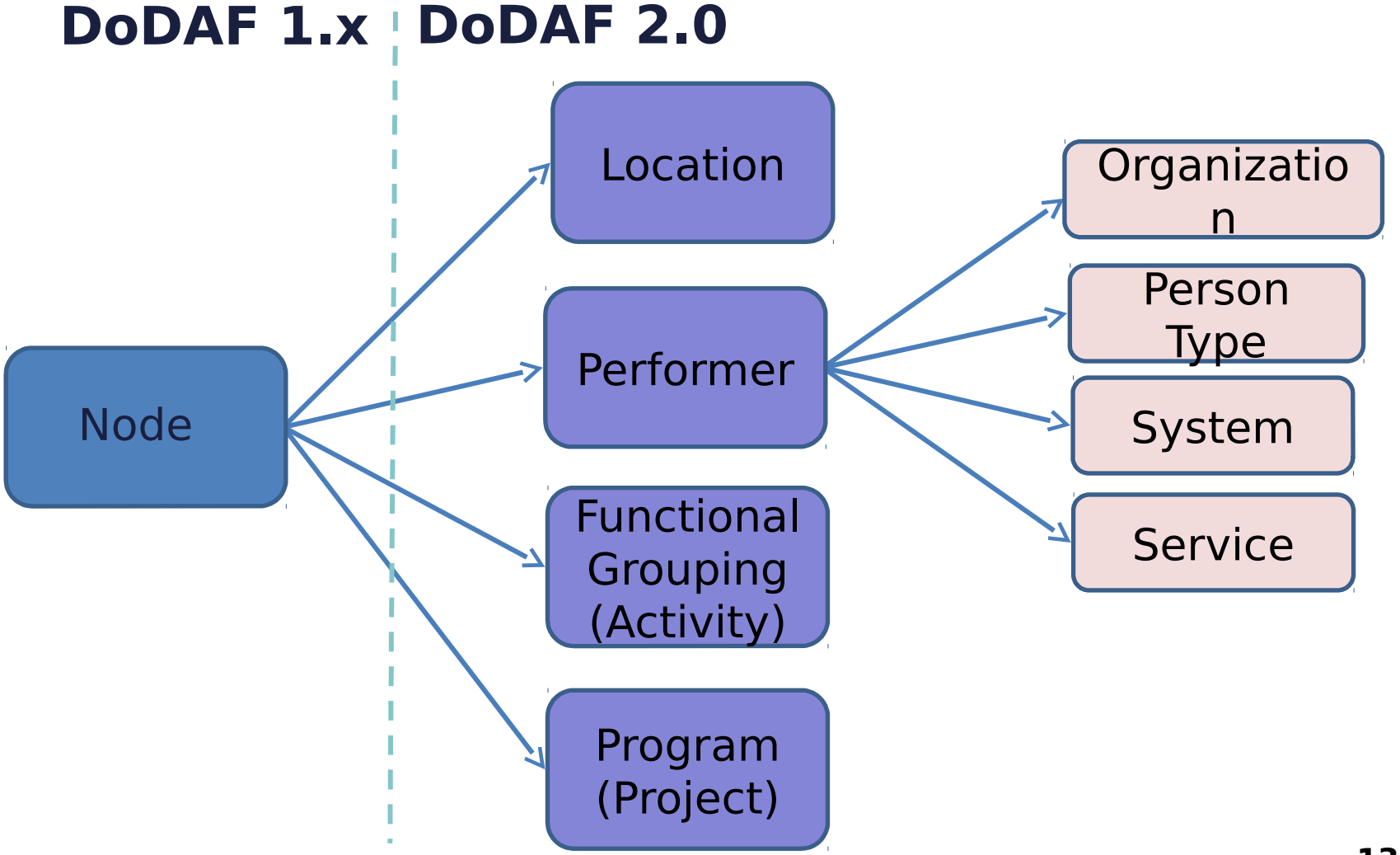

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What's the Benefit?

- We are forced to be more precise.
- Consider the relationship Node to Activity for example:
  - In DoDAF 1.5:
    - Node to Operational Activity
    - "Who does what"?
    - "Where things happen"?

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What's the Benefit?

- DoDAF 2.0
- If Node is a Performer (Organization, Person Type, System, Service)
  - ✓ Performer **Performs** Activity "Who does what"
- ✓ If Node is a Location
  - ✓ Activity **is Performed at** Location "What happens where"
- ✓ If Node is a Functional Grouping (Activity)
  - ✓ Activity **is Part of** Functional Grouping "Activity is part of"
- ✓ If Node is a Program (Project)
  - ✓ Activity **is Part of** Program (Project) "Activity is part of"